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No. 80-141

IN THE

Supreme Court of the United States

OCTOBER TERM, 1979

KELLEY MANUFACTURING COMPANY,
Petitioner,

vs.

LILLISTON CORPORATION,
Respondent.

ON PETITION FOR A WRIT OF CERTIORARI TO
THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

BRIEF FOR LILLISTON CORPORATION IN OPPOSITION

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QUESTIONS PRESENTED.

Questions 1 and 2 posed by petitioner incorrectly state the "original patent was invalid". There was no finding or adjudication by the District Court or the Court of Appeals that the original patent was invalid.

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BRIEF FOR LILLISTON CORPORATION IN OPPOSITION

Respondent respectfully requests that the Petition for a Writ of Certiorari for review of the judgment of the United States Court of Appeals for the Fourth Circuit in this case be denied.

OPINIONS BELOW.

The entire District Court opinion is reproduced in the Appendix (Res. App.), infra at A1. This independent reproduction by respondent was necessitated by the failure of petitioner to include the complete opinion.

STATUTES INVOLVED.

The statutes involved are reproduced in the Petition Appendix (Pet. App. A38-40).

STATEMENT OF THE CASE.

Petitioner's recitation of "The Suit and Issues Below" is the only adequate presentation in this section. The remaining sections are flagrantly inaccurate and misleading.

In "The Subject Matter of the Patent In Suit" and in "The Prior Art" petitioner omits any reference to the Lehman patent claims defining the row gang as being angularly adjustable, an essential feature of the claimed combination. The illustration at page 5 of the petition is not from the record—it is a hypothetical combination concocted by petitioner and should have been so identified.* In the section entitled "The Prior Sale Invalidity and Reissuance" petitioner inaccurately recites "so the original '387 patent was invalid as stated" without citing any such conclusion in the record. The rest of petitioner's "STATEMENT OF THE CASE" is a rehash of arguments presented and rejected in the courts below. Respondent is thus required to present its own Statement.

The Subject Matter of the Patent in Suit.

The invention defined by the Lehman, et al., patent claims was correctly stated by the District Court in its opinion (Res. App. A5-A6):

> "a gang of rotary hoes directly over the crop row but angled so as to displace the soil laterally instead of following the row straight on as had previous rotary hoe arrangements. This angled gang (called the 'row gang') was followed by two gangs of rotary hoes, one on each side of the row (called 'rear gangs') each of which was equipped with

* The alleged row gang of the "hypothetical combination" is not capable of being angularly adjustable.

means to angle it so as to allow soil to be thrown toward or away from the row.

* * *

"Surprisingly, when this arrangement of angularly-adjustable, free-floating rotary hoes was run over a row of crops it was found that the soil could be cultivated across the top of the row between the plants as well as alongside them, whereas the more conventional arrangements had permitted cultivation only alongside the plants leaving an uncultivated strip along the top of the row. Moreover, it was found that damage to the crops themselves was far less than anticipated, and was in fact quite acceptable. Since this happy result eliminated much of the hand hoeing which had previously been necessary where conventional cultivators were used, it came to be called 'once-over, all-over' cultivation." (footnote omitted)

In Lilliston Implement Company v. *E. L. Caldwell & Sons, Inc.*, 212 F. Supp. 413 (S. D. Tex. 1962) the original patent in suit was held to be valid and infringed, Judge Garza stating:

"The patentees of the patent in suit were seeking a patent on a cultivator for 'once-over all-over' cultivation which allowed a row of growing crops to be cultivated without the destruction of the same, as well as cultivating the ground on either side of the growing row of crops, which would allow dirt to be thrown on the crops or away from them. This is what they were seeking a patent on as a novel invention, and that is what they obtained from the Patent Office." 212 F. Supp., at 418.

* * *

"The cultivator patented by the Lehmans is one that has revolutionized the cultivation of growing crops." 212 F. Supp., at 419.

The Prior Art.

Prior to trial, petitioner cited over 300 references, but at trial principally relied on twelve patents. (Res. App. A7). As to petitioner's now "prominent patent art" examples, Maul

shows a cultivator having two gangs of free-floating "spading teeth" designed to run on opposite sides of a row of crops. (Res. App. A10). Braun shows a conventional straight row gang, atop the crop row, with no means for angularly adjusting the row gang. Braun does not teach the "once-over all-over" concept achieved by the patent in suit. (Res. App. A55).

In concluding the differences between the cited prior art and the claims in issue, the District Court found:

> ". . . the fact that in no prior cultivator had there been an arrangement of a row gang of rotary hoes and two rear gangs of rotary hoes, each separately mounted and free-floating and each angularly adjustable so as to permit 'rotatable engagement' of the row of crops with maximum destruction of weeds and grasses and minimal damage to the crops themselves." (Res. App. A10).

The Original Patent and Reissuance.

The Lehmans filed two applications for patents on April 1, 1958. On March 18, 1959, they next filed a third application combining the two prior applications and adding new matter. On September 7, 1960, a fourth application was filed and on June 12, 1961 the final application was filed combining the 1959 and 1960 applications which matured into the original patent in suit, No. 2,994,387, issued August 1, 1961. (Res. App. A6 and A33).

Each application contained a specific reference to the immediately preceding application(s), identifying the prior application by serial number and filing date to obtain the benefit of the earliest application's filing date pursuant to 35 U. S. C. § 120. This procedure met the conventional practice and interpretation of the law then in effect prior to 1962 to give the original patent the April 1, 1958 effective filing date of the earliest applications.

Since 1962, some courts have interpreted 35 U. S. C. § 120 and Rule 78 of the U. S. Patent Office Rules of Practice there-

under to mean that the final application maturing into a patent must specifically refer to the earliest application of which benefit of the filing date is sought. *Kelley Mfg. Co.* v. *Lilliston Corp.*, 180 U. S. P. Q. 364, 367 (E. D. N. C. 1973). Prior to trial in this action, a reissue was sought and obtained to specifically incorporate the April 1, 1958, filing date of the earliest application in view of this apparently changed law. The only effect of the reissuance was to confirm for the original patent the earlier effective date. (Res. App. A7 and A34).

The Rulings Below

The action below was a factual controversy. In addition to the findings set forth in the trial Court's Memorandum Decision, that Court adopted as its own, additional specific findings. (Res. App. A16 and A25). Upon thorough review, the Court of Appeals held:

> ". . . the District Judge's Memorandum Decision and his other rulings are comprehensive, exhaustive and sound, and adopting them we render a judgment of affirmance."

A. On Intervening Rights.

The Court of Appeals affirmed the trial Court in its rulings: (1) petitioner had no intervening rights where the reissue claims are substantially identical to the original claims, pursuant to 35 U. S. C. § 252, paragraph 2, first sentence; and (2) the factual situation and circumstances of this case obviated any application of the equitable doctrine of intervening rights.

The trial Court found the original patent had an effective filing date of April 1, 1958 (Res. App. A7 and A34), and that the patented invention was not on sale or in public use more than one year prior to the effective filing date of the original patent. (Res. App. A58). Contrary to petitioner's statement, the trial Court did not find that the original patent was invalid

or that the patented invention was on sale prior to March 18, 1958.

The Court of Appeals specifically ruled:

> ". . . the doctrine [of intervening rights] has no application where the crucial claims of the reissue patent are substantially identical to those of the original patent, 35 U. S. C. Section 252, as is indeed the case here." (Pet. App. A36).

The Court of Appeals also found "ample support in the record" to deny petitioner intervening rights "under the traditional equitable doctrine now codified in Section 252 . . . ." (Pet. App. A35).

B. On Validity.

The Court of Appeals found "the record as fully supporting" the trial Court's rulings on patent validity, rejecting petitioner's assertions "based on prior sale, anticipation and obviousness." (Pet. App. A34-A35).*

The trial Court correctly applied the 35 U. S. C. § 103 obviousness test enunciated by this Court in *Graham* v. *John Deere and Co.*, 383 U. S. 1, 17 (1966). In its opinion, Section 103 is recited and each of the required considerations is thoroughly examined. (Resp. App. A9 to A16). Further findings which the trial Court adopted on validity are set forth in the Appendix herein at A50 to A56.

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* Petitioner has not challenged the holding of infringement by the Courts below.

ARGUMENT.

A. Introduction

The issues presented by petitioner for review are *not* "special and important reasons" for granting the petition. Essentially, petitioner seeks a *factual* review which is not provided for by Supreme Court Rule 17.

B. There Is No Need to Review the Intervening Rights Portions of the Reissue Patent Sections of the Patent Laws.

The fact that this Court has *not* reviewed the intervening rights portions of the reissue patent sections since 1940 is manifest evidence of the clarity of the statutory language and the lack of any need to affirm what the statutory language clearly provides.

In any event, the basis asserted by petitioner for the need for review is misrepresented. Contrary to petitioner's characterization, the patent in suit has *never* been declared invalid nor has it *ever* been determined that there had been a prior sale or public use of the invention which would invalidate the patent.

Thus, even if petitioner's argument had any substance (which it does not) it is not applicable here because the activities of petitioner have been found to infringe "a valid claim of the reissued patent which was in the original patent". In this circumstance, the reissue statute, 35 U. S. C. § 252, is unequivocal and petitioner has *no* intervening rights.

C. The Courts in Adjudicating the Patent-In-Suit Did Follow the Policy of Strict Statutory Construction.

At least implicitly, petitioner admits that the reissue statutes are "plainly written." However, the argument that the trial Court ignored the pleaded protection of intervening rights and that the Appeals Court "misread" the plain language of the

statute does not provide "special and important reasons" for the granting of the petition. Petitioner seeks a factual review to which it is not entitled.

D. There Is No Conflict of Authorities in Cases Where the Issue Is a Claim to Priority Changed in a Reissue Application.

A reading of the cases* cited by petitioner (Pet. 13, 14) will show there is no conflict in the application of the reissue sections of the Patent Laws in cases where a patent has been reissued to change a claim to priority of invention. The Courts are unanimous in holding that a patent can be reissued to claim an earlier priority of invention. In each case cited, even those in which the reissue did not involve a change in claim of priority, a *factual* determination was made and the provisions of the statute properly applied as the case may be. Any *obiter dicta* remarks of the respective Courts are irrelevant.

There is, however, *no* conflict with the only case in point in connection with petitioner's argument, viz, *St. Regis Paper Company* v. *Bemis Company, Inc.*, 403 F. Supp. 776 (S. D. Ill. 1975), rev'd. on other grds., 549 F. 2d 833 (7th Cir. 1977), cert. den. 434 U. S. 833. That case "squarely held", at 793 that where a patent has been reissued *solely* to claim an earlier priority date, and thereby merely to correct a technical defect in cross-referencing hereditary applications brought on by a possible change in the law, *no* intervening rights arise under the reissue statute.

E. There Is No Conflict with Graham v. Deere.

This attempt at a "make weight" argument has no substance. No trial Court could more thoroughly apply the *Graham* v. *Deere* standards to the facts than the trial Court did in this case.

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* Several of the cases cited by petitioner do not even involve this principle of law.

CONCLUSION.

The petition should be denied out of hand.

Respectfully submitted,

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APPENDIX

IN THE UNITED STATES DISTRICT COURT
For the Eastern District of North Carolina
Wilson Division

Kelley Manufacturing Company,
Plaintiff,
vs.
Lilliston Corporation,
Defendant.
Civil No. 1295

MEMORANDUM OF DECISION

Following dismissal of an action for patent infringement brought by Lilliston Corporation (Lilliston), a Georgia corporation, against Kelley Manufacturing Company (Kelley), another Georgia corporation, in the Southern District of Texas on improper venue grounds Kelley instituted this declaratory judgment action in the Eastern District of North Carolina where Lilliston maintains a warehouse and conducts some business. The First Claim of plaintiff's complaint was severed for trial purposes and has been tried to the court without a jury on the issues of validity, enforceability and infringement of a patent held by Lilliston for a farm cultivator.[1] In this memorandum of decision the court will record its findings of fact and conclusions of law as required by Rule 52(a), F. R. Civ. P. Jurisdiction is based on 28 U. S. C. §§ 1338 and 2201.

1. Kelley's Second and Third Claims allege violations by Lilliston of the antitrust laws; the Fourth Claim alleges violations of the unfair competition laws of North Carolina and Georgia; and the Fifth Claim charges Lilliston with infringement of a peanut harvesting machine. These claims have been reserved for trial at a later date.

The patent in suit is United States Reissue Patent No. 28,271 (the '271 Reissue Patent) entitled "Cultivator" which issued originally as United States Patent No. 2,994,387 (the '387 Patent) on August 1, 1961 to Charles L. and Alvin H. Lehman and by them assigned to Lilliston in 1961. Plaintiff's complaint which originally attacked the validity of the '387 patent was amended following its reissue on December 10, 1974, but the complaint as amended did not essentially depart from the typically all-incllusive allegations usually found in patent litigation, that is to say, it alleged that the reissue patent is invalid, void and unenforceable because of the prior use, sale and disclosure of the patented invention; anticipation by the prior art; obviousness in view of the prior art; abandonment; file wrapper estoppel; new matter; failure to obtain a license to file foreign applications; failure to clearly disclose, define or distinctly claim the invention; failure to set forth the best mode contemplated by the inventors for carrying out the invention; claiming aggregations of parts of elements; inoperative disclosure, incapable of accomplishing the intended purpose; inutility; indefinite and overbroad claims; bad faith; intentional and material representations to the Patent Office and estoppel by reason of the same; patent misuse; and violation of the antitrust laws.

In an amended answer defendant denied all of plaintiff's allegations and in a counterclaim alleged infringement by plaintiff of Claims Eight, Ten—Thirteen and Twenty—Twenty-Four inclusive of the '271 reissue patent. Relief sought by the defendant on its counterclaim includes a permanent injunction against infringement of the patent by Kelley; damages for past infringement; punitive and treble damages because of the alleged willful and deliberate nature of Kelley's infringement; and costs and attorney's fees.

The patent in suit relates to an apparatus for cultivating crops planted in parallel rows, and the general objective of the invention is

". . . To provide a rotary cultivator having separate gangs of 'free-floating' rotary hoes which will engage the row crops with a greater force than heretofore possible with cultivators having conventional free-floating gangs of hoes."

After listing some ten or more additional objects of the invention (see Appendix A attached hereto) the patent states that

"These and other objects are accomplished in accordance with this invention, by a cultivator which comprises a frame adapted to be moved forwardly over the ground and a plurality of separate gangs which are mounted from the frame for swinging about a transverse axis to rotatably engage spaced-apart rows of crops in a laterally extending row during forward movement of the frame. Each such gang is also swingable about a vertical axis to adjust the angular relation of the path of rotation of the hoes thereof with respect to the rows; and means are carried by the frame for turning the ground intermediate adjacent rows of crops and rearwardly of the engagement therewith of the gangs with the crops."

Typical of the claims in suit is Claim Twenty which reads:

"20. A cultivator, comprising a frame adapted to be moved forwardly over the ground, a gang of rotary hoes mounted on the frame for swinging about a transverse axis to rotatably engage a row of crops during forward movement of the frame, a pair of additional gangs of rotary hoes each mounted from the frame for swinging about a transverse axis to rotatably engage the ground on each opposite side of the row of crops and rearwardly of the engagement of the hoes of the first-mentioned gang therewith during forward movement of the frame, and means for adjusting the angular relation of the path of the rotation of the hoes of each gang with respect to the forward movement of the frame."

A rotary hoe in farm machinery parlance can be likened to a metal wheel (usually about ten to fifteen inches in diameter) from which the rim has been removed leaving the spokes to engage and till the soil as the rotary hoe moves over the ground.

The name probably derives from the fact that in earlier models the ends of the spokes were shaped like small hoes which enabled them to engage the ground with a digging action. In more recent versions the spokes have been arcuate in form and their leading edges have been sharpened so that they engage the ground with a slicing action. These are called "slicer tines", but they still fit within the generic term of rotary hoe.[2]

When more than one rotary hoe is mounted on the same axle it is called a "gang of rotary hoes."

Since the parties agree that all of the elements required by the patent in suit were old in the art at the time of its original issue, we are concerned here with a combination patent, and the principal issue on the question of validity is whether or not the manner in which the Lehman brothers arranged these elements and provided for their adjustment constituted patentable invention. The problems which the inventors were seeking to solve were stated in the opening paragraphs of the patent as follows:

> "In a conventional rotary cultivator, rotary hoes are fixedly secured across the width of a frame in multiple rows so that, as the frame is moved forwardly, the ends of the legs of each hoe successively penetrate the ground to break up its upper crust. If, however, the ground is not level, the crops from the high rows may be pulled up due to the concentrated weight of the hoes imposed upon them, while the low rows may not even be touched by the hoes. Still further difficulty is encountered when the crops to be cultivated are planted either high on a row or deep in a row.
>
> "Ordinarily, weeds are rooted only in the surface crust of the ground above the more deep-rooted crops such that they may be pulled up by the rotary hoes without damage to the crops themselves. When the crops are high, it is desirable to kill off the chopped weeds by covering them

2. Jack C. Whitesides, formerly a design engineer of Lilliston and now a Kelley Vice-President, holds U. S. Patent No. 3,232,356 which covers a slicer tine tool, but the title of the patent is "Rotary Hoe".

with dirt from between the rows. It may also be desirable to build up the row in order to facilitate operation of a mechanical picker or the like. On the other hand, when the crops are low, caution should be taken to see that they are not covered by dirt from between the rows."

To solve these problems the inventors experimented with running a gang of rotary hoes directly over the crop row but angled so as to displace the soil laterally instead of following the row straight on as had previous rotary hoe arrangements. This angled gang (called the "row gang") was followed by two gangs of rotary hoes, one on each side of the row (called "rear gangs") each of which was equipped with means to angle it so as to allow soil to be thrown toward or away from the row. In addition to being thus pivotable about a vertical axis the row gang and the rear gangs were each individually mounted to pivot about a transverse axis which enabled them to be "free-floating" and thus to follow more closely the contour of the row being cultivated. Finally, means were provided for tilting the gangs with respect to the vertical plane.[3] This triangular arrangement of the rotary hoes could, of course, be repeated several times on one supporting frame thus allowing several rows to be cultivated at once.

Surprisingly, when this arrangement of angularly-adjustable, free-floating rotary hoes was run over a row of crops it was found that the soil could be cultivated across the top of the row between the plants as well as alongside them, whereas the more conventional arrangements had permitted cultivation only alongside the plants leaving an uncultivated strip along the top

3. Also stressed in the description of the invention was the feature of pivotally mounting the gangs from the frame "for swinging about an axis rearwardly of the engagement of the hoes of such gang with the ground." This arrangement, it was asserted, enabled the hoes to engage the ground with a "pushing" action which resulted in penetration of the ground with "a greater force than the conventional 'pulled' type of hoes." Witnesses at the trial did not ascribe any particular virtue to this feature.

of the row. Moreover, it was found that damage to the crops themselves was far less than anticipated, and was in fact quite acceptable. Since this happy result eliminated much of the hand hoeing which had previously been necessary where conventional cultivators were used, it came to be called "once-over, all-over" cultivation.[4]

VALIDITY

Of the multiple charges of invalidity mounted by plaintiff against the '371 reissue patent the court deems the following worthy of discussion:

1. *Prior Use, Sale and Disclosure.*

The Lehmans began work on their invention as early as 1956, and they filed two applications for patents on April 1, 1958. They next filed a continuation-in-part application on March 18, 1959, which included the subject matter of the two prior applications and introduced new matter. On September 7, 1960 a fourth application was filed, and on June 12, 1961 the final application was filed which combined the 1959 and 1960 applications into a single application which matured into the original patent in suit, No. 2,994,387.

The Lehmans sold a cultivator embodying features covered by this patent to a Mr. Eugene Engels "around the first of March" of 1958. Thus it may very well be that there was a sale of the patented invention more than one year prior to March 18, 1959, the date of the first application referred to in the '387 patent. If so, the patent would be invalid under 35 U. S. C. § 102(b).[5] During the pendency of this action, however, Lilliston

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4. The term is not used in the patent itself, but the words "once-over" were used in the course of the prosecution of the patent and appear at pages 51 *et seq.* of the file wrapper.

5. The matter is discussed in more detail in *Kelley* v. *Lilliston*, ... F. Supp. ....., 180 USPQ 364 (E. D. N. C. 1973), in which

(Footnote continued on next page.)

applied for and obtained reissuance of the '387 patent as the '271 reissue patent in order to incorporate the filing date of the first Lehman application, that is, April 1, 1958.[6] Since the only evidence of a prior use, sale or disclosure showed it to have been well within one year prior to April 1, 1958, the prior sale charge has not been sustained.

2. *Anticipation by the Prior Art.*

In an infringement suit brought by Lilliston in the Southern District of Texas shortly after the issuance of the '387 patent Judge Reynaldo Garza held the patent valid and in the course of his opinion wrote:

> "There is no question that the patent in suit involves an invention which has been made in a very highly developed and crowded field. The defendant cited more than 80 prior art patents and publications, but at the trial relied mainly upon the Bonds Patent No. 1,249,008, issued in 1917." *Lilliston Implement Company* v. *E. L. Caldwell & Sons, Inc.*, 212 F. Supp. 413, 419 (S. D. Tex. 1962).

While conceding that no claim of the patent in suit is fully anticipated by any single prior art cultivator, the plaintiff here has cited over 300 references against the patent and has strongly maintained that when the claims are given the "broad interpretation" contended for by Lilliston they "read on" one or more prior art cultivators. Of the many references cited plaintiff places principal reliance on these twelve patents:

Braun 1,908,110 (PX 10-91)
Remy French 1,104,111 (PX 12-115 and PX 13-116)

(Footnote continued from preceding page.)
this court denied plaintiff's motion for summary judgment based on nine separate grounds which included the "on-sale" charge.

6. In accordance with procedure then in effect this earliest date had not been brought forward in the prosecution as a continuation-in-part of the '387 patent. The only effect of the reissuance was to give the '387 patent the earlier effective date.

Walker 2,227,772 (PX 27-112)
Burns 2,243,241 (PX 55-233)
Ogden 675,968 (PX 11-87)
Maul 529,457 (PX 14-143)
Charley 2,655,083 (PX 41-326)
Newton 1,681,464 (PX 39-325)
Friend 2,579,561 (PX 40-324)
Benjamin 1,760,336 (PX 33-95)
Christensen, et al. 1,043,202 (PX 49-140)
Christofferson 949,218 (PX 48-89)

An examination of these patents reveals that while they all contain one or more of the elements which admittedly were old in the art in 1958 (discs, rotary hoes, scratcher teeth, shovels, sweeps, etc.) and means to angle, tilt and "free-float" them, none of them discloses the triangular arrangement of angularly-adjustable, free-floating rotary hoes of the Lehman patent designed to run over a row of crops and cultivate the soil around and adjacent to the plants.

> "It is suggested . . . that [the patent in suit] is nothing more than an aggregation of elements old in the art and as such it comes within the rules of *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Corp.*, 340 U. S. 147. Of course, to establish anticipation in such a situation, it is not necessary that all of the elements be found in a single patent or publication. It is enough if the whole of the prior art considered together discloses all of the claimed elements and that no new functional relationship arises from their combination. . . . In order to anticipate a patent for a combination, the prior art must disclose all of the elements of such combination or their mechanical equivalents, functioning in substantially the same way to produce substantially the same result. . . . Rudimentary or unsuccessful experiments with isolated elements of a combination do not anticipate an invention which successfully combines those elements. . . . And, '* * * whoever finally perfects and improves a device and renders it capable of practical, useful and effective operation is entitled to a patent although others had the idea and made experiments toward putting it into practice. * * * '. . . ." (Citations omitted.) *McCul-*

lough Tool Company v. *Well Surveys, Inc.*, 343 F. 2d 381, 398-99 (10th Cir. 1965), *cert. denied.* 383 U. S. 933 (1966).

Application of these principles to the case at bar has led to the conclusion that the '371 reissue patent is not anticipated by the prior art. While the whole of the prior art considered together discloses all of the claimed elements, the prior art does not disclose all of the elements or their mechanical equivalents functioning in substantially the same way to produce substantially the same result as the patent in suit.

3. *Obviousness.*

35 U. S. C. § 103 provides in pertinent part that:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. . . ."

Application of the statute requires considerations of (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art at the time the invention was made. *Graham* v. *John Deere Company*, 383 U. S. 1, 17 (1966).

(a). *Scope and Content of the Prior Art.*

As previously indicated, the field of mechanical implements for cultivating growing crops and tilling the soil is a very highly developed and crowded one. At the time of the invention in suit it included all cultivating and tillage equipment such as rotary hoes, discs, shovels, sweeps and scratcher teeth, means for disposing, arranging and moving the same over the ground and means for adjusting the same with reference to the horizontal

and vertical planes. Not surprisingly, therefore, the parties here have readily agreed that the implements employed in the Lehman patent introduced no new element into the art.

(b). *Differences Between the Prior Art and the Claims at Issue.*

As early as 1894 a patent was issued (Maul No. 529,457) on a cultivator having two gangs of free-floating "spading teeth" designed to run on opposite sides of a row of crops, but a front/rear rotary tool arrangement was not disclosed. U. S. Patent No. 675,968 issued to Ogden in 1901 disclosed a machine which could be converted from a cotton chopper into a cultivator. Free-floating cylindrical drums with protruding cultivating teeth served as rotary hoes which were angularly adjustable. As an optional feature a "lister attachment" carrying a "plurality of teeth or shovels" for banking the soil on either side of the row could be mounted rearwardly of the "toothed cylinders". The patent did not disclose means for angling these rear gangs of shovels. In 1939 U. S. Patent No. 2,227,772 was issued to Walker on a cultivator which disclosed rotatable gangs of staggered, sharp-edged blades designed to travel on opposite sides of the row close to the plants. Rearward of these rotary blades shovels were mounted on the same beams which were pivotally attached to the frame forward of the blades. The patent did not disclose an arrangement for allowing the blades to cultivate across the top of the row.

Patents had been issued on numerous other cultivators prior to 1958, but the foregoing are representative of those cited by the plaintiff in support of its charge of obviousness. From all the cited prior art the court has concluded that the principal difference between the prior art and the claims in issue here (Claims 8, 10-13, and 20-24) lies in the fact that in no prior cultivator had there been an arrangement of a row gang of rotary hoes and two rear gangs of rotary hoes, each separately mounted and free-floating and each angularly adjustable so as to permit

"rotatable engagement" of the row of crops with maximum destruction of weeds and grasses and minimal damage to the crops themselves.

(c). The Level of Ordinary Skill in the Art.

It was suggested by Judge Garza in the *Caldwell* decision that the ordinary farmer would be a person of ordinary skill in the art of farm machinery design and construction. While numerous patents have issued to farmers (including the Lehmans in this case) on such machinery, ordinarily the level of skill in the mechanical arts is that of persons engaged in the design and manufacture of machinery rather than that of its users. Here the plaintiff contends that a person of ordinary skill in the art has at least the skill of a graduate agricultural engineer.[7] The court would not go so far, but the evidence does support the finding that the level of skill in the art was reasonably high. Many people were at work in this field which, as noted before, had become highly developed and crowded. Even so, no one had put together this combination of old elements in the manner and configuration which gave the much desired results previously mentioned.

The conclusion is that although the scope and content of the prior art encompassed all the elements found in the patent in suit, there are significant differences between the prior art and the claims at issue here and that notwithstanding the level of ordinary skill in the art was reasonably high, the Lehmans were the first to combine the old elements in a way that produced a new, beneficial and unexpected result. It follows that the invention is not void for obviousness.

Adding weight to this conclusion are the so-called secondary considerations, all supported by evidence in this case, of long-

7. Significantly, plaintiff's expert, Dr. Stanley J. Clark, himself a graduate agricultural engineer, who had been employed by the John Deere Company, was not asked by plaintiff if the patent in suit would have been obvious to him prior to 1958.

felt need for a machine that would eliminate or minimize hand-hoeing; the large number of people who were working on the problem; the fact that most of the elements finally combined by the Lehmans had been known in the art for over fifty years; the skepticism exhibited by many as to whether the invention would work; copying of the invention by established farm machinery manufacturers; the immediate acquisition by Lilliston of the patent rights for a substantial consideration followed by the payment of substantial royalties to the inventors; and the considerable commercial success which Lilliston has experienced in marketing equipment embodying the patented features.[8]

4. *Failure to Clearly Define or Distinctly Claim the Invention.*[9]

Finally, plaintiff strenuously argues that the claims at issue do not particularly point out and distinctly claim the subject

8. There is a growing body of opinion that these secondary considerations should actually be regarded as of primary importance in determining obviousness under Section 103. *See Reeves Instrument Corporation* v. *Beckman Instruments, Inc.*, 444 F. 2d 263 (9th Cir. 1971), and "Laying the Ghost of the 'Invention' Requirement" by the Honorable Giles A. Rich, Associate Judge of the United States Court of Customs and Patent Appeals, a speech given to the Los Angeles Patent Law Association on September 18, 1972. Adoption of these views would certainly alleviate some of the difficulty experienced by the courts in applying what Judge Learned Hand described as "perhaps the most baffling concept in the whole catalog of judicial efforts. . . ." *Lyon* v. *Bausch & Lomb Optical Company*, 224 F. 2d 530, 536 (2nd Cir. 1955).

9. Another position advanced by plaintiff in the pleadings and pre-trial proceedings was the alleged failure of the patent's specification to disclose the manner and process of making the invention in such full, clear, concise and exact terms as to enable persons skilled in the art to make and use the same as required by 35 U. S. C. § 112, but this issue was determined against the plaintiff on its summary judgment motion, *Kelley Manufacturing Company* v. *Lilliston Corporation, supra,* and has not been brought forward in plaintiff's post-trial brief.

matter of the invention as required by 35 U. S. C. § 112. Central to plaintiff's arguments is the contention that the inventive concept claimed by defendant for the invention, namely, that the "cooperative effect" between the combination of the row gangs of rotary hoes and the rear gangs embodied in the claims at issue produces an unusual and unexpected "once-over, all-over" cultivation result, is nowhere spelled out in the patent which is also totally lacking in instruction as to exactly how the elements should be arranged to achieve this "cooperative effect".[10] From this factually indisputable premise plaintiff goes on to argue that since the patent does not teach how others may avoid infringing it, it does not satisfy the definiteness requirements of Section 112, citing *General Electric Company* v. *Wabash Appliance Corporation,* 304 U. S. 364 (1938), and

---

10. The court is under the impression that Lilliston's emphasis on "cooperative effect" may bear a closer relationship to the perceived necessity of demonstrating a "synergistic" result in the light of *Sakraida* v. *Ag Pro, Inc.,* 425 U. S. 273 (1976), and *Anderson's-Black Rock* v. *Pavement Salvage Company,* 396 U. S. 57 (1969), than to anything the Lehmans had in mind as they were working on their invention. The fact remains, however, that the arrangement of the admittedly old elements finally arrived at by them and disclosed in the claims in issue did produce a new, long-sought and beneficial result. That they may not have understood precisely the principles underlying the invention is not fatal to the patent.

> "A patentee may be baldly empirical, seeing nothing beyond his experiments and the result; yet if he has added a new and valuable article to the world's utilities he is entitled to the rank and protection of an inventor. And how can it take from his merit that he may not know all the forces which he has brought into operation? It is certainly not necessary that he understand or be able to state the scientific principles underlying his invention, and it is immaterial whether he can stand a successful examination as to the speculative ideas involved." *Diamond Rubber Company* v. *Consolidated Rubber Tire Company,* 220 U. S. 428, 435-36 (1911).

United Carbon Company v. *Binney & Smith Company*, 317 U. S. 228 (1942).[11]

While it is true that specific directions are not given for the adjustment of the elements to fit all conditions, the claims in issue do disclose in general terms arrangements of the row gangs and rear gangs which enable them to achieve a cooperative effect when properly adjusted for crop and soil conditions, and the evidence establishes to the court's satisfaction that this effect does take place. As the row gang cultivates over the row and removes dirt from around and between the plants it is immediately replaced by dirt thrown toward the row by the rear gangs. This may not rescue as many dislodged plants from "impending death" by restoring them to an upright position as one of defendant's witnesses would have us believe, but it provides a highly effective method of weed and grass control while mulching and aerating the soil with minimal damage to the crops, the results in which farmers are most interested. The fact that the farmer himself must experiment and make adjustments to fit particular conditions does not invalidate the patent for indefiniteness. *Procter & Gamble Manufacturing Company* v. *Refining, Inc.*, 135 F. 2d 900 (4th Cir. 1943).

Plaintiff's contention that the patent does not teach how one can avoid infringing it is perhaps best answered in this exchange between counsel for plaintiff and defendant's expert witness:

> Q. If I as a non-Lilliston person, but interested in the art of cultivation, and looking with a view toward developing a cultivator of my own, were to examine U. S. Reissue

11. Plaintiff also argues that the terms "rotary hoe" and "rotatably engage" are not properly defined in the patent, but the court finds that these terms were widely used and understood in the art. As previously noted "rotary hoe" was understood to include a variety of tools and was used by Mr. Whitesides, now a Kelley Vice-President, to label his invention of a "slicer tine". Whitesides also used the term "rotatably engaging" in a patent issued to him on the Kelley cultivator in 1974. PX 10-100, Columns 4, 5 and 6, Claims 1, 2, 3, 5 and 8.

> Patent No. 28,271 . . . where would I find language sufficiently clear that I could determine how to build a cultivator that did not have what you characterized as the "inter-reaction" between front and rear gangs?
>
> A. I am not sure you would find language specifically dealing with that. The purpose of a patent is to tell you what you build to be within the patent. That is, the purpose of the patent is to define the invention and to claim the invention. That is clearly defined in the patent. If you understand that, then there are many things around the periphery that you could build avoiding the patent. The patent's purpose is not to say you can build this and not infringe; you can build that and not infringe; you can build something else and not infringe. The purpose of the patent is to define the metes and bounds of what is within the patent, not to tell you what you can build and not build within the patent (Tr. 9, pp. 1753-55).

The cases cited by plaintiff, *General Electric* and *United Carbon, supra,* are distinguishable and are not regarded as controlling here.

In summary the court is of opinion that Kelley has not carried its heavy burden of establishing by a preponderance of the evidence its charges of invalidity based on prior use, sale and disclosure, anticipation by the prior art, obviousness and failure to clearly define or distinctly claim the invention. The court is strengthened in this conclusion by the fact that the Patent Office has twice found the invention patentable (*see Tights, Inc.* v. *Acme-McCrary Corporation,* 541 F. 2d 1047, 1051 (4th Cir. 1976)); the fact that in the only court test of the patent in suit which went to final judgment the patent was held valid, *Lilliston Implement Company* v. *Caldwell, supra;* and the fact that two major farm implement manufacturers, John Deere Company and International Harvester, settled infringement actions brought against them by Lilliston and agreed to cease manufacturing their allegedly infringing machinery. PX 42 and 43. It follows that Claims 8, 10-13, and 20-24 of the '271 reissue patent are valid. The court has carefully considered plaintiff's other charges

of invalidity, some of which were previously disposed of in the rulings made on plaintiff's motion for summary judgment previously referred to, but none has been found supported by evidence considered adequate to change this result.

* * * * *

In addition to the facts found by the court on the issue of validity the court adopts as its own the following proposed findings of fact and conclusions submitted post-trial by the defendant on this issue: Nos. 4.01-4.07 inclusive; Nos. 5.10-5.14 inclusive; Nos. 6.01-6.09 inclusive; Nos. 9.01-9.04 inclusive; Nos. 12.02, 12.03, 12.05-12.10 inclusive; Nos. 12.17-12.23 inclusive; Nos. 12.25, 12.34 and 13.01-13.12 inclusive.

INFRINGEMENT

In its counterclaim for infringement Lilliston alleges that Kelley's 400 Series KMC Cultivator contains each of the elements in the '271 reissue patent and that they are normally arranged to produce the identical once-over, all-over cultivation result achieved by the patented invention. In denying infringement Kelley conceded that its cultivator may bear some resemblance to the cultivator now being made and sold by Lilliston, but it denies that Lilliston's present cultivator embodies the patented invention and alleges many distinguishing features between its cultivator and the one actually disclosed in the patent. To obviate this argument the court will disregard the current version of the Lilliston cultivator and will refer to a diagram (Figure 1 below) of the Lehman cultivator as shown (substantially) in the patent and a diagram (Figure 2) of the Kelley cultivator as made and sold today.

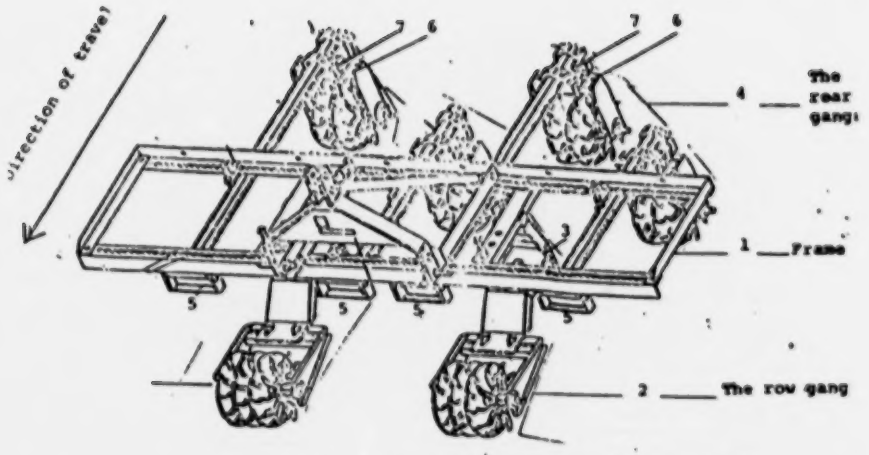

Figure 1. The Lehman Cultivator (two row sections)

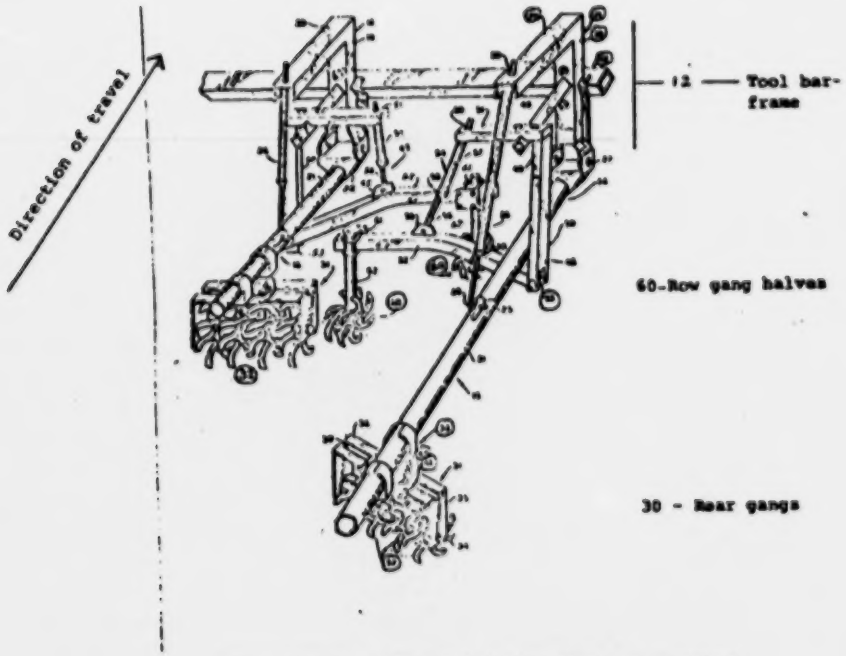

Figure 2. The Kelley Cultivator (one row section)

Claims 8, 10-13 and 20-24 of the patent in suit alleged by Kelley to be invalid are alleged by Lilliston to be infringed. As stated before, Claim 20 is representative of these claims, and we begin by comparing its embodiment in the original Lehman cultivator as shown in Figure 1 with the features of the Kelley cultivator as shown in Figure 2. In the language of Claim 20 the Lehman machine shows:

> A cultivator, comprising
>
> A frame (1) adapted to be moved forwardly over the ground,
>
> A gang of rotary hoes (2),
>
> Mounted on the frame for swinging about a transverse axis (3) to rotatably engage a row of crops during forward movement of the frame,
>
> A pair of additional gangs of rotary hoes (4),
>
> Each mounted from the frame for swinging about a transverse axis (5) to rotatably engage the ground on each opposite side of the row of crops and rearwardly of the engagement of the hoes of the first mentioned gang therewith during forward movement of the frame, and
>
> Means (6) for adjusting the angular relation of the path of rotation of the hoes of each gang with respect to the forward movement of the frame.

Claim 21 which is dependent on Claim 20 only adds

> Means (7) for adjusting and fixing the angular relation of each gang of said pair of gangs with respect to the ground level between positions tilted from one side to the other of a level position.

The Kelley cultivator in Figure 2 by comparison shows (again in Claim 20's language except where shown in brackets):

> A cultivator, comprising
>
> A frame (12), (18), (19), (20) adapted to be moved forwardly over the ground,
>
> A [two-half] gang[s] of rotary hoes (60),

> [Each] mounted on the frame for swinging about a [longitudinal] axis (53) to rotatably engage a row of crops during forward movement of the frame,
>
> A pair of additional gangs of rotary hoes (32),
>
> Each mounted from the frame for swinging about a transverse axis (22) to rotatably engage the ground on each opposite side of the row of crops and rearwardly of the engagement of the hoes of the first-mentioned gang therewith during forward movement of the frame, and
>
> Means (40), (41) for adjusting the angular relation of the path of rotation of the hoes of each gang with respect to the forward movement of the frame.

And continuing the comparison with Claim 21 of the patent the Kelley cultivator also shows:

> Means (38) for adjusting and fixing the angular relation of each gang of said pair of gangs with respect to the ground level and between positions tilted from one side to the other of a level position.

It is readily apparent from the foregoing comparisons that with respect to the rear gangs of rotary hoes on the two cultivators Claims 20 and 21 of the patent in suit read directly on the Kelley cultivator, and the court has no hesitance in so holding.[12] The inquiries before the court are thus narrowed to two:

1. Does the row gang of the Kelley cultivator which consists of two half gangs suspended from two separate arms each mounted to swing about a "longitudinal" axis, that is, one

12. Plaintiff makes the point that the slicer tine-type rotary tools used in the Kelley cultivator differ materially from the earlier type rotary hoe disclosed in the '271 reissue patent, not only in form but in the result it achieves, and that this serves to avoid infringement. As has been seen, however, the slicer tine tools classify as rotary hoes, and given the virtually unlimited adjustments available for the rotary hoes on these machines, the court is not persuaded that there is any substantial difference in the results achievable by the various types of rotary tools that may be employed.

parallel to the machine's direction of travel, equate with the single row gang of the Lehman cultivator operating off one axle and mounted to swing about a transverse axis, that is, one perpendicular to the direction of travel?

2. If so, is the Kelley cultivator designed to and does it achieve the same once-over, all-over cultivation result as the cultivators built in accordance with the patent in suit?

Lilliston confidently asserts that each of these questions should be answered in the affirmative and that the patent should therefore be held infringed. Kelley, on the other hand, insists that the patent requires a single front gang of rotary hoes mounted "for swinging about a transverse axis to cultivate the soil between the plants along the drill of a row of crops with a non-destructive combing action" and that the Kelley cultivator not only lacks such an element but that it is "not for the purpose of performing, and cannot perform the particular method of cultivating disclosed in the patents." The Kelley cultivators, so the argument goes, are simply "for the purpose of performing a conventional method of cultivating unlike that performed by the invention claimed by the patents in suit."[13]

The court has concluded that in addition to the identity of the rear gang elements of the two machines and the common purpose they serve, the row gang elements in the Kelley cultivator are substantially and functionally equivalent to the row gang of the Lehman cultivator, and when the Kelley cultivator with its triangular arrangement of angularly-adjustable, free-floating rotary hoes is run over a row of crops, it is capable of practicing and does in fact practice the invention embodied in the claims in issue.

There is nothing in the patent which limits the row gang to a single gang mounted on one axle, and the fact that the patent

13. Implicit in this argument is the suggestion that the Lehman cultivators do indeed produce a result different from that achieved by conventional cultivators, a proposition which plaintiff spent much trial time and not a little briefing trying to refute.

drawings do not show a split front gang or other possible arrangements of the elements that might be infringing does not avoid infringement.[14] *Straussler* v. *United States,* 154 Ct. Cl. 275, 290 F. 2d 827 (1961).

Although the matter of the mounting of the Lehman row gang on a transverse axis vis-a-vis the Kelley row gang's mounting on a longitudinal axis was debated at length during the trial and in the briefs, the court is not persuaded that the difference between the two mountings is a material one. The object of allowing the gangs to swing about any axis is simply to allow them to "float" freely and follow the contour of the ground in order to achieve closer cultivation of the entire surface.[15]

The question of whether the Kelley cultivator is designed to and does in fact achieve the same once-over, all-over cultivation result as cultivators built in accordance with the patent in suit must also be answered in the affirmative. This conclusion follows from the close similarity between the manner in which the Kelley cultivator is advertised to operate, from the testimony of witnesses who have observed and compared the operation of the cultivators in the fields and from the movies of these operations as shown by Lilliston during the trial.[16]

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14. In 1962 Lilliston began using the split row gang on its cultivators and mounting them on a parallel linkage device patented by Mr. Whitesides (DX 11-71, U. S. Patent No. 3,203,487), who was then with Lilliston. The split gangs continued to "free-float" together on a transverse axis and to remain laterally adjustable so as to achieve "rotatable engagement" with the row crops.

15. It is true, as plaintiff's expert, Dr. Stanley Clark, testified, that this mounting of the Kelley row gangs causes them to describe arcs in the vertical plane which action may in turn bring the rotary hoes slightly closer to or slightly further away from the plants as they go up and down with the contour of the row, but the court is convinced that the effect of this, if any, on the cultivating result is minimal.

16. Kelley's expert, Dr. Clark, gave testimony to the contrary, but the experiments which he described appear to have been con-

(Footnote continued on next page.)

To begin with, the Kelley cultivator is built in accordance with U. S. Patent No. 3,794,123 (DX 10-100) issued to Jack C. Whitesides after he left Lilliston and joined Kelley. The diagram shown in Figure 2, *supra,* is adapted from the diagram shown in the patent. The Whitesides invention is summarized in the patent as follows:

> "Briefly described, the present invention comprises a cultivator which utilizes a plurality of independently suspended rotary hoe gangs to till the soil along a plurality of crop rows. The rotary hoe gangs are mounted on a framework and are adjustable with respect to the framework so that the gangs of rotary hoes can be positioned in various different arrangements, including arrangements where virtually all of the soil along a crop row can be tilled without leaving any untilled portions. The cultivator has its rotary hoe gangs arranged in groups for each crop row, with each group including one pair of rotary hoe gangs each being swingable about an axis normally extending along the crop row, and a second pair of rotary hoe gangs each being swingable about an axis extending normally transverse to the crop row. The first pair of rotary hoe gangs are each mounted on a laterally extending support leg which extends across the crop row from its respective rotary hoe gang, and the rotary hoe gang of each laterally extending support leg can be positioned along the length of its support leg in overlapping or spaced relationship with respect to the other rotary hoe gangs of the group in various lateral positions along the crop row to be tilled by the group of rotary hoes." (Col. 1, Lines 37-60)

Claim 1 of the Whitesides patent reads:

> "A cultivator comprising a framework for towing by a tractor or the like in a forward direction over the ground along crop rows, a first gang of rotary hoes mounted on said framework for rotatably engaging a crop row closely adja-

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(Footnote continued from preceding page.)
trolled and did not include several of the experiments performed by defendant's experts. Significantly, Kelley brought no movies to the trial to illustrate the testimony of its witnesses.

> cent the crop in the crop row and arranged to swing with respect to said framework about an axis extending normally approximately parallel to the direction of forward movement of said framework and laterally displaced from the first gang of rotary hoes across the crop row, and a second gang of rotary hoes mounted on said framework for rotatably engaging a crop row further away from the crop in the crop row than said first gang and arranged to swing with respect to said framework about an axis extending transverse to the direction of forward movement of said framework." (Col. 4, Lines 52-67)

Other claims in the patent are similar, and it is perfectly apparent to the court that Whitesides was making a conscious effort to patent a cultivator that would do everything the Lilliston cultivator would do and at the same time, it is assumed, he wished to avoid infringement of the Lehman patent if possible.[17]

The close similarity between the operation of the Kelley cultivator and cultivators built in accordance with the patent claims in suit is further graphically illustrated by a comparison of the assembly instructions of the Kelley Owners Manual (DX 91-73, p. 6) with the assembly instructions of the Lilliston Owners Manual (DX 139-175, p. C). Diagrams from the two manuals

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17. No presumption that the Kelley cultivator does not infringe arises from the fact that Whitesides was issued a patent on the independent suspension for the row gang halves which is claimed to be an improvement over the suspension systems disclosed in the '271 reissue patent.

> ". . . If the inventive idea of the original patentee has been appropriated, and the alleged infringing device contains the material features of the patent in suit, the court will declare infringement, even when those features have been supplemented or modified to such an extent that the defendant may be entitled to a patent for the improvement." *Crown Cork & Seal Company* v. *Aluminum Stopper Company,* 108 F. 845, 866 (4th Cir. 1901).

are reproduced as Appendix B attached and even a cursory inspection shows the two diagrams to be virtually identical.[18]

Still further evidence of the similarity between the operation of the Kelley cultivator and the cultivators made in accordance with the Lehman patent is to be found elsewhere in the Kelley Owners Manual (DX 91-73 at p. 3) where it is said:

> "5. ROW SPIDER GANG ADJUSTMENT
>
> "a. The function of the row gang is to cultivate the soil close to the crop row. Each row gang half can be angled to move soil to the row or away from the row. The spiders should be run as close to the row as possible without harming the crop.
>
> "6. REAR SPIDER GANG ADJUSTMENT
>
> "a. The function of the rear gang is to cultivate the area between crop rows. Gangs can be angled to move soil to the row or away from the row and can be tilted on the pipe to conform to bed shapes.
>
> "7. TYPICAL GANG SETTINGS
>
> "a. The assembly layout drawing shows a typical cultivator setting. Observe that the row gangs are angled to move soil away from the crop row and the rear gangs are angled to move soil to the crop row. This particular setting is recommended for larger crops or second cultivation. For small crops or the first cultivation, it is recommended that the row gangs be angled to move soil to the row and the rear gangs angled sufficiently to uproot all weeds as the spiders move soil away from the row."

The deposition testimony of C. J. Whitfield, a mechanical engineer who was formerly Lilliston's senior project engineer and now a Kelley Vice-President, confirms that the Kelley cultivator

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18. It should be noted that the diagram of the Lilliston cultivator in Appendix B is of a later model with a split and staggered row gang rather than the single row gang of the original Lehman cultivator, but the evidence has shown no significant difference between the cultivation results achieved by the two models.

is claimed by Kelley to do everything the Lilliston machine will do and more.

> Q. Did you think the Lilliston rotary cultivator in 1972 was a reasonably effective substitute for a Kelley rotary cultivator?
>
> A. I am sure some Lilliston dealers and customers all felt so, but I would feel ours was a superior machine.
>
> Q. Yours would do everything that the Lilliston machine would do and something more; is that what you are saying?
>
> A. I think that pretty well sums it up. We intended to do more. (Tr. 9, p. 1648)

Finally, defendant's witnesses testified convincingly that the Kelley cultivator and the Lilliston-Lehman machines were functionally equivalent and the motion pictures (DX 30-201) shown by defendant corroborated their testimony.

The conclusion is inescapable that the Kelley cultivator not only contains the same or the functionally equivalent of all the elements disclosed in the '271 reissue patent claims in suit but it is also designed to and does in fact achieve the same once-over, all-over cultivation result as is achieved by cultivators embodying the claims of that patent which are in issue here. *Specialty Equipment & Machinery Corporation* v. *Zell Motor Car Company*, 193 F. 2d 515 (4th Cir. 1952). The patent is infringed.

* * * * *

In addition to the facts found by the court on the issue of infringement the court adopts as its own the following proposed findings of fact and conclusions submitted post-trial by the defendant on this issue: Nos. 7.01-7.08 inclusive; 11.01-11.13 inclusive and 11.16-11.25 inclusive.

The conclusions reached with respect to validity and infringement render moot plaintiff's claim for attorney's fees pursuant to 35 U. S. C. § 285. At this time the court is of the opinion that defendant's motion for attorney's fees should be denied, but this question will be left open until the hearing on the issue of

damages at which time evidence may be submitted on the question by both parties.

CONCLUSION

The court's findings of fact and conclusions set forth in this memorandum of decision are summarized as follows:

1. The court has jurisdiction of the parties and subject matter.

2. United States Reissue Patent No. 28,271 is valid and it is infringed by the 400 Series KMC Cultivator manufactured and sold by Kelley Manufacturing Company.

3. Pursuant to Rule 54(b), F. R. Civ. P., the court finds that there is no just reason for delay, and subject to an accounting for the determination of damages due defendant on its counterclaim for infringement final judgment will be entered with respect to the First Claim in the plaintiff's complaint.

/s/ F. T. Dupree, Jr.
F. T. Dupree, Jr.
United States District Judge

June 2, 1978

APPENDIX A

Objects of the Invention Reissue Patent No. 28,271.

An object of this invention is to provide a rotary cultivator having separate gangs of "free-floating" rotary hoes which will engage the row crops with a greater force than heretofore possible with cultivators having conventional free-floating gangs of hoes.

Another object is to provide a rotary cultivator having separate gangs of free-floating rotary hoes which are individually free to conform to the contour of the row each engages.

A further object is to provide a rotary cultivator having separate gangs of free-floating rotary hoes whose ground turning action may be regulated by their angular adjustment with respect to the row crops without a substantial change in their tracking pattern.

Still another object is to provide a rotary cultivator having rotary hoes which will uniformly engage the row crops as well as the ground between the rows regardless of the contour thereof and which will permit the weeds to be pulled from the row crops and covered with dirt turned from between the rows.

A still further object to provide a rotary cultivator of the type above described in which the rotary hoes are mounted with respect to one another in a compact arrangement which, at the same time, enables them to engage the ground with maximum leverage.

Yet another object is to provide such a rotary cultivator which is readily adjustable in a manner to prevent dirt from between the rows being turned onto the crops.

Another object is to provide a cultivator which is readily adjustable for use in cultivating different widths of rows, or

even double row crops, as well as in turning a greater or lesser amount of dirt onto the rows.

Still another object is to provide a cultivator in which the cultivating elements thereof are selectively interchangeable with one another to turn dirt from between the rows in either of two directions.

Still a further object is to provide a cultivator having a vehicular frame for supporting the cultivating elements in a manner to permit the force with which such elements engage the ground to be adjusted to a desired amount.

A still further object of this invention is to provide an improved cultivator of the type above described in which the ground intermediate either high or deep planted crops may be turned either toward or away from the crops.

Yet another object is to enable the above-described cultivator to be converted for such use with a minimum of time and expense.

Other objects, advantages and features of this invention will be apparent to one skilled in the art upon a consideration of the written specification, the attached claims and the annexed drawings.

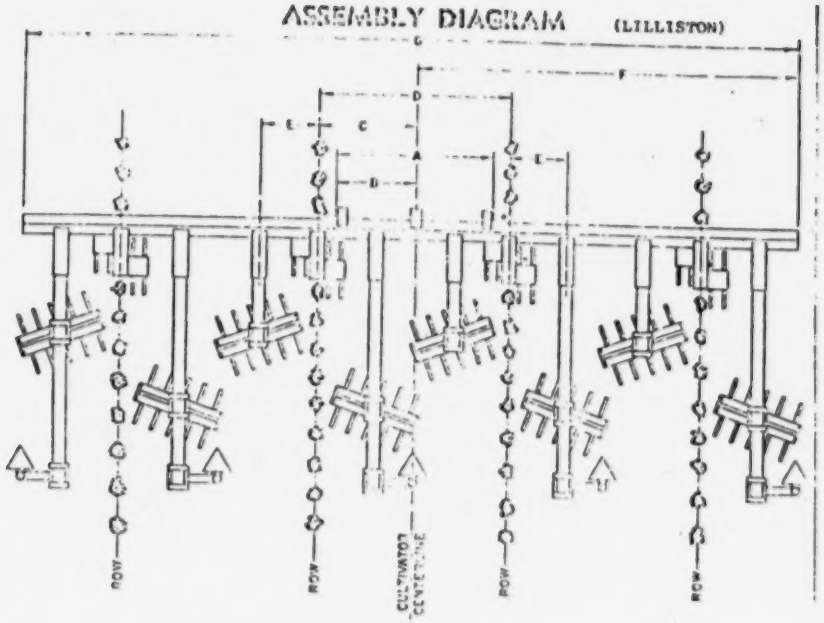
These and other objects are accomplished, in accordance with this invention, by a cultivator which comprises a frame adapted to be moved forwardly over the ground and a plurality of separate gangs which are mounted from the frame for swinging about a transverse axis to rotatably engage spaced-apart rows of crops in a laterally extending row during forward movement of the frame. Each such gang is also swingable about a vertical axis to adjust the angular relation of the path of rotation of the hoes thereof with respect to the rows; and means are carried by the frame for turning the ground intermediate adjacent rows of crops and rearwardly of the engagement therewith of the gangs with the crops.

From the foregoing, it will be apparent that each gang is free-floating so as to conform to the ground levels of the row crops. It will also be apparent that the angular adjustment of each gang enables regulation of the extent with which the weeds are chopped out of the crops.

Each separate gang is pivotally mounted from the frame for swinging about an axis rearwardly of the engagement of the hoes of such gang with the ground. In this manner, the hoes engage the ground with a "pushing" action which causes them to penetrate the ground with a greater force than the conventional "pulled" type of hoes. In one form of the invention, the support for each gang of rotary hoes may be pivotally mounted from the frame for swinging about a longitudinal axis so that each gang is free to rock into conformity with the contour of the row it engages.

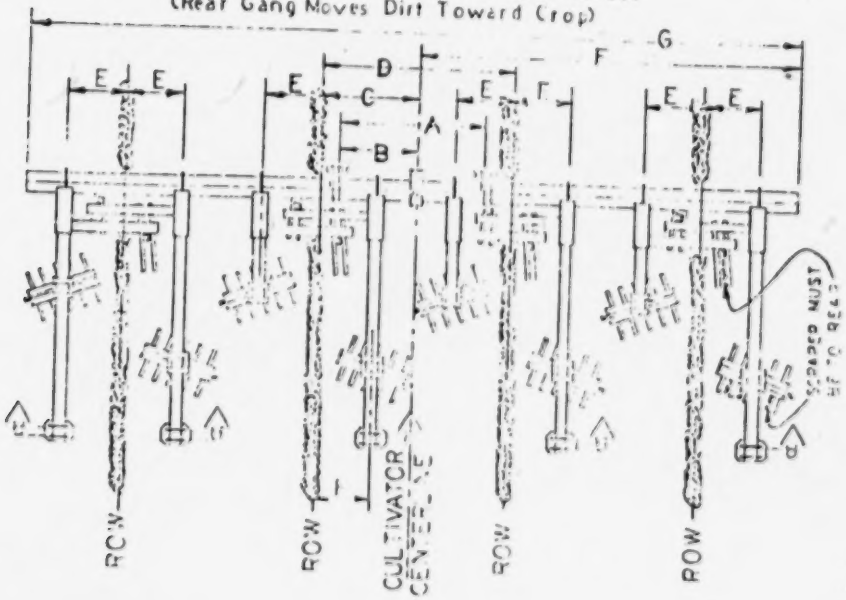
APPENDIX B

ASSEMBLY DIAGRAM (LILLISTON)



ASSEMBLY LAYOUT (KELLEY)

For Row Spacings Of 28 Inches And Wider
(Rear Gang Moves Dirt Toward Crop)



DEFENDANT'S POST-TRIAL FINDINGS OF FACT ADOPTED BY THE COURT

IV. TECHNOLOGICAL BACKGROUND

4.01 For many years, farmers have planted crops, such as cotton, corn or maize, soybeans and others, in rows. These crops have required cultivation to control weeds and grasses. Growing crops draw substantial amounts of moisture and nutrients from the soil to sustain their growth to maturity during the growing season. Weeds and grasses, however, often exhibit even faster growth rates, and, if left unchecked, compete with the crops for the available moisture and nutrients, tending to smother small and emerging crops thereby reducing yields or quality of the crop. Field conditions during the critical period when the crop is emerging from the soil may further aggravate this situation by preventing the farmer from getting into the field to cultivate. That is, rains coinciding generally with emergence of the crop often make the soil in the field muddy and prevent the farmer from cultivating the row-crops. Row-crop cultivation is also beneficial in that the crust commonly forming on the soil after a rain should be broken or mulched to aerate the soil and improve moisture absorption and decrease loss of moisture through capillary action. Accordingly proper cultivation enhances plant growth. (Tr. 913-917)

4.02 In earlier times, cultivation was accomplished by hand- and animal-powered equipment including hand-hoeing. Although requiring more labor than mechanized cultivation, prior to the Lehman invention hand-hoeing was used to cultivate the crop in the row between adjacent plants. (Tr. 918-926, Tr. 1549)

4.03 An extremely wide variety of mechanized cultivators were developed before the Lehman rotary cultivator to reduce

the labor required and speed the cultivating operation so that each farmer could farm more land. These included cultivators employing discs, sweeps or shovels. Although the farmer could set up the cultivator and operate at slow speeds to cultivate as close to the plants as possible, these machines could not operate on the crop row itself or close enough to the crop row to cultivate between adjacent plants in the row without destroying or seriously damaging the crop stand. Consequently, hand-hoeing in the row was still necessary. (Tr. 918-926, Tr. 1128)

4.04 Most such cultivators were mounted at the front of a tractor in order for the operator to see the crops to prevent destroying or seriously damaging the crop stand. When the crop is emerging, and for some time thereafter, the farmer frequently used shields to prevent such cultivators from covering the young crop with soil. The shields were commonly located on the opposite sides of and in close proximity to the crop row with the cultivating tools, i.e., the sweeps or shovels, located outwardly therefrom. (PX 81-335, DX 36-241) The farmer necessarily operated at slow speeds, 1½ to 2 miles per hour, to keep the cultivator properly aligned with the crop row. (Tr. 1545-46) Only after the crop has grown sufficiently such that there was no longer any danger of the crop being covered could the shields be removed. By then the weeds in the crop row were sufficiently large and rooted in the row to minimize the beneficial effects of cultivation. (Tr. 1127-29)

4.05 Farm implements commonly known as rotary hoes were used to break the soil crust and assist the seedlings in emerging from the soil. As soon as weeds or grasses were firmly rooted the rotary hoe had little effect on them. Rotary hoes, although they were designed to be flexible to follow beds and uneven ground, were not used to shape the earth to form crop beds. Conventional rotary hoes followed the row straight on and were not angled to displace the soil laterally. (DX36-241, Tr. 926-930)

4.06 Rotary-hoe attachments for conventional row-crop sweep cultivators comprised groups of three or four rotary hoes which, as in the conventional rotary hoe, were run straight on directly over the crop rows, between the front sweeps or shovels. In addition to breaking any crust that was present and tending to uproot small weeds not yet firmly rooted, the rotary hoes served as rotary shields for the sweeps or shovels operating between the rows to prevent them from throwing soil onto the crop row and covering the plants in the row. (DX36-241, PX44-282, Tr. 745)

4.07 At the time of the Lehman invention, herbicides were not in general use. Today, row-crop cultivators are often used in combination with herbicides. Despite the value of using chemical herbicides, and the existence of few weeds in the crop, cultivation is important for its soil-conditioning action—crust-breaking and improved aeration and moisture absorption. Therefore, today, a combination of cultivation and chemical weed control is commonly used. (Tr. 1128)

5.10 On April 1, 1958, the patentees filed two applications on rotary cultivators in the United States Patent and Trademark Office—Serial Numbers 725,640 (directed to the Lehman wide rear rotary hoe gang cultivator) (PX18-101) and 725,641 (directed to the Lehman scratcher type cultivator) (PX19-102). On March 18, 1959 the patentees filed a continuation-in-part application Serial Number 800,304, which included not only the subject matter of application Serial Numbers 725,640 and 725,641, but also introduced the twisted scratcher teeth and split rear rotary hoe gang concepts. (PX20-103) On September 7, 1960 they filed application Serial Number 54,468 for a similar type cultivator employing tilted rear gangs of rotary hoes. (PX21-104) On June 12, 1961 they filed application Serial No. 113,993 which combined the applications filed March 18, 1959 and September 7, 1960 into a single application at the request of the patent examiner, and it was on this application that the original patent in suit, No. 2,994,387 was issued on

August 1, 1961. (PX22-105, see pages 50 and 51). (Tr. 1297-99)

5.11 The prosecution of the '387 patent followed the conventional practice of consolidating developments of an invention, filed as separate applications, into a single application and issuing a single patent to avoid double patenting. (Tr. 1300-01)

5.12 This patent, now the '271 reissue patent, has an effective filing date of April 1, 1958 and includes claims 8, 10-13, and 20-24, inclusive, directed to the commercial embodiment of the Lehman cultivator which has free-floating row gangs angled for rotatably engaging a row of crops in combination with free-floating rear gangs angled for cooperative interaction with the row gangs to produce a "once-over all-over" cultivation. (Tr. 1304-06, Tr. 1547-50)

5.13 The Lehman Equipment Co. sold their cultivators which they designated with their trademark "Roll-N-Cultivator" from sometime in 1959 until 1961, having at least sixty-five (65) dealers. (Tr. 1544 and see 212 F. Supp. 413, at 415) Initially, the Lehmans encountered much skepticism as to the capability of their rotary cultivator. They were required to demonstrate the cultivator to convince farmers of its ability to cultivate "once-over all-over" without destroying or causing significant damage to crops. (Tr. 1556-58)

5.14 In early 1960, Lilliston's territory manager in Texas, James B. Pike, saw the Lehman "once-over all-over" "Roll-N-Cultivator" and after seeing it in operation, reported to his superior at Lilliston that he had seen a new tool, the like of which he had never seen before and felt that it was something that Lilliston should take a look at. (Tr. 1561-69) William E. Hoffmann, then Vice President of Sales at Lilliston, then travelled to Texas and asked Charles Lehman if he could see the Lehman rotary cultivator at work, which he did. He was astonished that the row gangs could be run over the crop without crop damage. He even confirmed this crop condition the

next day after the cultivator demonstration. Mr. Hoffmann reported back to Lilliston that the tool had great promise and suggested Lilliston investigate the possibility of working with Lehman Equipment Co. to market the rotary cultivator on a wider scale than could be done by the Lehman Equipment Co. (Tr. 1570-77)

VI. ACTIVITIES OF LILLISTON

6.01 In January, 1961 Lilliston acquired exclusive rights to make, use and sell the rotary cultivator embodied in the original Lehman patent. (DX40-22) Lilliston immediately worked on the adaption to the Lilliston production capabilities of the cultivator structure, which theretofore had been fabricated by Lehman Equipment Co. (Tr. 891, 894-896, 1596-1600, 1644-45) The first model from which the adaptions were made is exemplified in DX14-235. (Tr. 896)

6.02 In the period 1961-1964, consistent with Lilliston's policy of product improvement, additional refinements in the Lehman Equipment model were made. These included refinement of the depth and force regulation, refinement of the free-floating, row gang mounting to permit the row gangs to be pushed or pulled, and providing adjustable lateral spacing of the rotary hoes in the row gang. (Tr. 930-932)

6.03 This later refinemen was made to provide more versatility in the use of the row gang and permit the cultivator to be used for a longer period of time during the growing cycle of the plant with minimum damage to the plant. The suggestion to adjust the lateral spacing of the inside rotary hoes in the row gang was derived from one of the Lehman co-inventors. The spacing was accomplished by the use of a separate spacer mounted on the axle of the row gang or the use of different hub configurations. (DX15-176, Tr. 932-937)

6.04 Versatility of the Lehman cultivator was further improved by separating the row gang into two halves. (DX16-

173) This refinement permitted the farmer to eliminate the use of spacers and different hub configurations but achieve the same result. The unpatented arrangement which was incorporated in the 1964 Lilliston-Lehman cultivator permitted the row gang halves to be transversely aligned, angled in the same direction, or angled in opposite directions or adjusted in or out as the farmer desired. The free-floating row gang mounting structure remained unchanged. (Tr. 937-40)

6.05 The first Lilliston-Lehman cultivators manufactured by Lilliston employed a rectangular frame on which the row gangs and rear gangs were mounted. The rectangular frame was used through 1964. In 1962 development work was initiated on the use of a square tool bar frame on which the row gangs and the pairs of rear gangs could be mounted. (Tr. 942-944)

6.06 In 1962 Jack Whitesides, who was then a design engineer working for Lilliston on the Lilliston-Lehman cultivator, originated a new design of a free-floating suspension arrangement for mounting split row gang halves on a tool bar frame. (Tr. 945) He characterized his design in a description written in September, 1962 (DX19-66) as:

> "The split row gang assembly consists of two gang halves (1) attached to beam (2) which floats on a parallel linkage. Each gang half consists of one or more (normally two) spiders, an axle, and standard.
>
> *The split row gang is designed to cultivate directly over the crop row.* The nature of various crops, soils and personal preferences requires that the spacing between the inner two spiders on the row gang be adjustable in order to accommodate different sized foliage. Any desirable spacing can be obtained by adjusting each row gang half laterally." (emphasis added)

6.07 Mr. Whitesides' design for a free-floating suspension arrangement was patented and issued as U. S. Patent 3,203,487 (DX11-71). The application for patent was prepared and prosecuted by Harold Jones, Kelley's present counsel. The

patentee did *not* succeed in obtaining claims to cover the splitting of the row gang halves per se. Instead the patent had to be limited to the suspension arrangement for mounting the row gang halves to permit their independent adjustment for achieving the movement of dirt as well as the lateral adjustment for accommodating crop rows having foliage of varying width and substantial height. The suspension arrangement has a floating action which:

> "permits the gang halves to adjust their vertical positions to the terrain over which the rotary hoe gang assembly is passing and prevents the arms of the rotary hoes from penetrating the earth beyond the upper crust and damaging the roots of the crop being cultivated." (Col. 2, lines 41-46)

i.e. a free-floating action.

6.08 Mr. William G. Moore, Vice President/Engineering for Lilliston who was personally familiar with all of the row gang refinements and had observed the cultivating effect of Lilliston-Lehman cultivators which employed the different row gang arrangements, in his testimony described the equivalency between the use of spacers in the row gang, the initial splitting of the row gang into halves on a common transverse center line but arranged to permit alternate settings for angular adjustment of the row gang halves, and the current arrangement of staggering the row gang halves employed in using the Whitesides design for mounting the row gang. (Tr. 969-995) Mr. Moore further testified that the cultivating effect achieved with Lilliston-Lehman cultivators which employ either spacers in the row gang, or the split row gang arrangement, or staggered row gang arrangement is identical to the cultivating effect achieved by the initial model of Lilliston-Lehman cultivator. In all models the same cultivating results could be achieved in accordance with the inventive concept embodied in the '271 reissue patent. (Tr. 995-999)

6.09 During the course of refining the original Lehman rotary cultivator to provide the current model of Lilliston-Lehman Rolling Cultivator implement, Lilliston continuously reviewed the changes with their attorneys, including Harold Jones, to determine whether each particular model such as the current model of the Lilliston-Lehman Rolling Cultivator implement was covered by the original Lehman patent (Tr. 994-5).

VII. COPYING OF THE LILLISTON-LEHMAN ROTARY CULTIVATOR BY KELLEY

7.01 Lilliston has been manufacturing and selling farm implements for over 50 years and rotary cultivators since 1961. Kelley, on the other hand, has been in business since 1967 and has sold rotary cultivators since 1971. (Stipulation of Facts, paragraphs 11 and 12)

7.02 Prior to 1971 the only cultivation equipment manufactured and sold by Kelley was a power tiller (Tr. 1647) in which the cultivating elements were not ground driven but were driven by the power take off of the tractor. Whitesides was placed in charge of designing the 400 Series KMC Cultivator. (Tr. 1629-30)

7.03 During his employment with Lilliston, Mr. Whitesides was named inventor in several patent applications which were assigned to Lilliston (Stipulation of Facts, para. 14) and which were prepared and prosecuted by the firm of Newton, Hopkins and Jones. Included among these applications were the applications that issued as Whitesides Patent 3,203,487 (DX11-71) and Whitesides Patent 3,232,356 (DX12-233). As pointed out above (Para. 6.07) Mr. Jones prepared and prosecuted the former in the U. S. Patent and Trademark Office; while Messrs. Jones and Thomas prepared and prosecuted the latter. Mr. Harold D. Jones, Jr. was a partner and Mr. George M. Thomas was an associate in that firm. Messrs. Jones and Thomas now represent Kelley in this action.

7.04 Unbeknownst to Lilliston when Mr. Whitfield left Lilliston and, later when Mr. Whitesides left Lilliston, to join Kelley, as will be shown below, they took with them a considerable quantity of confidential Lilliston documents, including blueprints, price lists, cost information, sales projections, knowledge of suppliers, knowledge of a specific ductile iron composition and other trade secrets and know-how. (Tr. 1657-58)

7.05 For example, a specific alloy and heat treatment for manufacturing rotary hoes referred to in a Lilliston blueprint of a pivot bushing (DX99-132) was taken and used by plaintiff, ostensibly as "reference material". Mr. Whitesides acknowledged it was this "reference material" which "made the bushing work". (Tr. 1641).

7.06 Additional useful confidential information taken by Messrs. Whitesides or Whitfield and utilized by plaintiff include: a list of suppliers of material rated as reliable by Lilliston (DX112-146; Tr. 1654); and cost information on various materials used in manufacturing (DX114-148, DX125-159 and DX127-161; Tr. 1653-1655).

7.07 Plaintiff also used information from the misappropriated documents not only to get in the market faster, but to be able to ascertain *when* to get in. Lilliston's "Five Year Forecast" (DX115-149) dated July 19, 1966 was prepared for defendant's top management team members. This 8-page document taken from Lilliston to plaintiff by Mr. Whitfield contains sales and engineering cost projections for Lilliston's production equipment, including cultivators and peanut harvesting equipment, for the years 1967-1971. During this period plaintiff began production of both these items. Plaintiff therefore had in its possession this top level document laying bare the projections of its main competitor, defendant.

7.08 Kelley utilized this information and the acknowledged experitises of Messrs. Whitfield and Whitesides to assist in the design of its 400 Series KMC Cultivator. No attempt was made

to follow the prior art to which it now pays lip-service. Not only do substantial portions of the Kelley cultivator conform exactly to the Lilliston-Lehman rotary cultivator, including the rear gang assemblies, but the Kelley front row gang halves are mounted so as to be capable of cooperating with the rear gangs to effect the novel and unique "once-over all-over" cultivation produced by the Lehman cultivator and the refinements thereof incorporated in the Lilliston/Lehman Rolling Cultivator (DX25-223 and DX30-201).

9.01 The inventive concept embodied and claimed in the aforementioned claims involves a basic cultivator unit which can be combined to provide multiple units for simultaneously cultivating a plurality of rows of crops. Each cultivator unit includes gangs of rotary hoes which work in relation to each row of crops *in cooperation* with each other with no significant damage to the crops. The front row gang rolls over and works the crop row. The rear gangs work the ground between the rows of crops rearwardly of the row gang. Each gang is free floating and independently angularly adjustable. The cooperation is achieved by angling the row gang to aggresively cultivate right in the row of crops and by angling the rear gang to immediately thereafter move dirt toward the row of crops. (Tr. 892-4, 969-973, 980-999, 1547-1550, 1741, 1304-6) This *cooperation* unexpectedly achieves a "once-over all-over" cultivation without significant damage to crop. (Tr. 1149-50, 1543) Tilting of the pair of rear gangs with respect to ground level is also available to permit the cultivation of high planted or deep planted crops.

9.02 The "once-over all-over" cultivation achieves in a single pass along the crop row substantially complete removal of the weeds and grasses as well as the desired mulching and crumbling effect on the soil from crop row to crop row including the area between the aligned plants with no significant damage to the plants. As a result hand hoeing is seldom required. (Tr. 892-4, 1305-6)

9.03 This result cannot be achieved by the use of row gangs alone, pairs of rear gangs alone, or two cultivators operating in tandem. (Tr. 1737-8, 1741-2)

9.04 Nor can it be achieved by a combination of elements other than that embodied in the claims in issue with the row gang in front and the rear gangs on the side rearwardly of the row gang (Tr. 1553-1555)

XI INFRINGEMENT BY KELLEY

A. The Kelley 400 Series KMC Cultivator

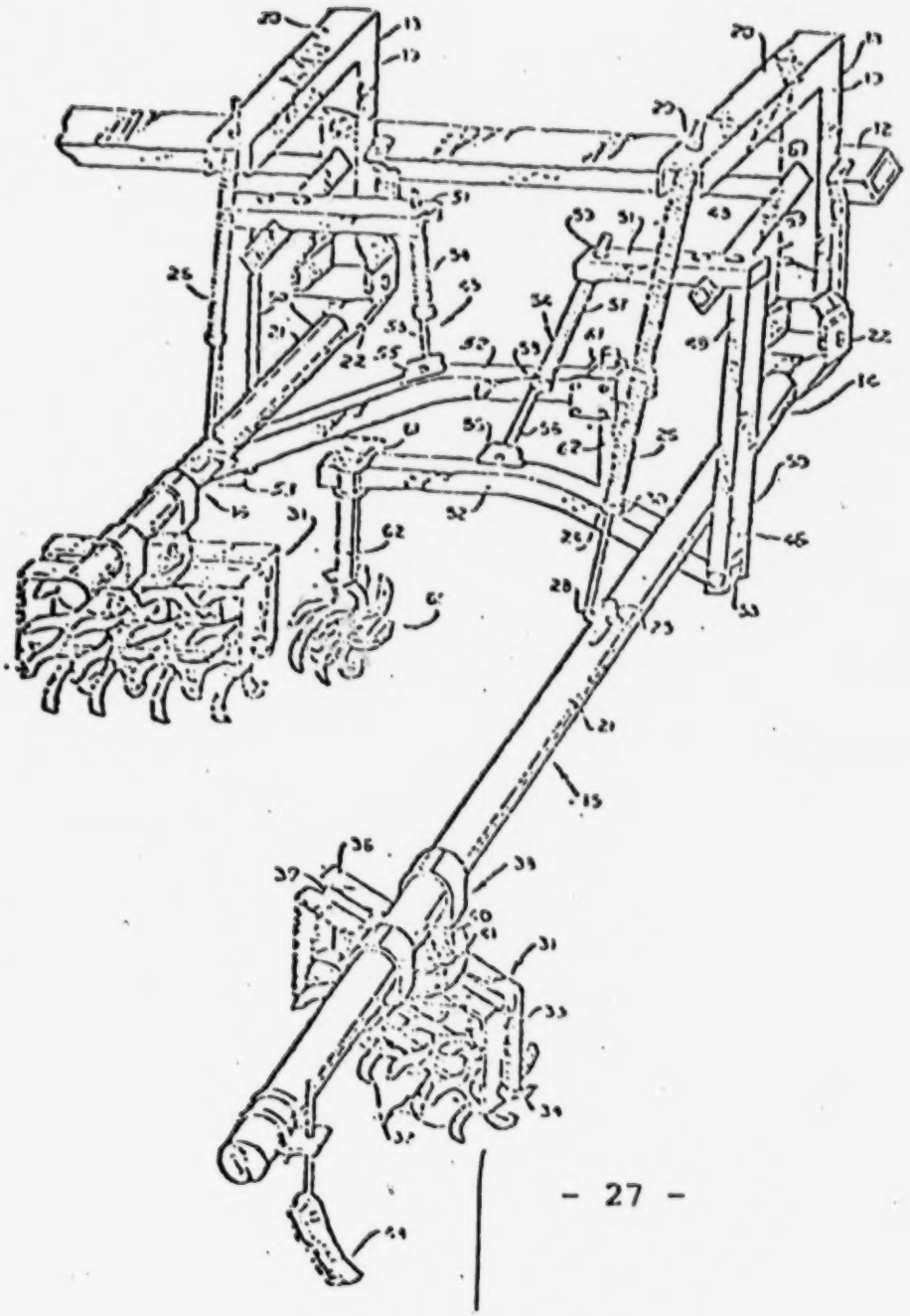
11.01 The first 400 Series KMC Cultivator marketed by Kelley is shown in the 1972 Kelley Owner's Manual and Parts Book. (DX90-72 and see Exhibit A attached to Complaint) In this model the mounting arrangement for the row gang halves was attached directly to the rear gang pipes which are pivotally mounted to the tool bar frame on an axis transverse to the direction of movement of the cultivator. This mounting arrangement provided a free-floating action for the row gangs which permitted them to conform to the contour of the row that each gang engages. In 1971-1972 Lilliston complained to Kelley about the infringement of the original Lehman patent by this model of the 400 Series KMC Cultivator. (Exhibits B and C attached to Complaint)

11.02 Kelley thereafter changed the row gang mounting arrangement directly to the tool bar frame. (DX22-237A) This change is embodied in the later model of the 400 Series KMC Cultivator which is illustrated in the 1973, 1974, 1975 and 1977 Kelley Owner's Manual and Parts Book. (DX91-73, DX92-74, DX93-75, DX8-231) in the late model 400 Series KMC Cultivator the row gang beam* to which the row gang halves are mounted (See DX8-231, p. 17) is pivotally mounted

* This element is designated as a pivotal support leg 52 in the Whitesides '123 patent (DX10-100).

on a cap screw inserted in the row gang bracket parallel to the direction of movement of the cultivator. This suspension system has a floating action. This change was incorporated in the 400 Series KMC Cultivator starting in 1973.

11.03 The row gang mounting arrangement was designed by Jack Whitesides who obtained U. S. Patent 3,794,123 (DX10-100) and assigned it to Kelley. (Stipulation of Facts, para. 14) The illustrative embodiment of the complete cultivator including row gangs and rear gangs described in the specification of the patent is the same as the current model 400 Series KMC Cultivator. (Tr. 1629-30) The following illustration is a reproduction of Figure 3 from the Whitesides '123 patent.



11.04 The adjustability of the row gangs is described in the '123 patent at Col. 1, lines 40-45 and Col. 4, lines 20-27 as follows:

> "The rotary hoe gangs are mounted on a framework and are adjustable with respect to the framework so that the gangs of rotary hoes can be positioned in various different arrangements, *including arrangements where virtually all of the soil along a crop row can be tilled without leaving any untilled portions.*"
>
> * * *
>
> "The support legs of each support leg assembly 45 and 46 therefore normally extend across and overlap the crop row, and the rotary hoe gang of each pivotal support leg 52 can be moved along the length of the pivotal support leg so that the paths of the rotary hoe gangs can be positioned *in overlapping or offsetting relationship with respect to each other across a crop row, as may be desired by the operator of the cultivator.*" (Emphasis added)

11.05 On either model of the 400 Series KMC Cultivator, the row gang halves are laterally adjustable to bring the row gang halves into floating, rotatable engagement with the spaced apart rows of crops depending upon soil conditions, type of crop, maturity of the crop being cultivated, and other factors considered by the farmer in adjusting the 400 Series KMC Cultivator for use.

11.06 The rear gangs are mounted on support bar assemblies 15 and 16 and as shown in Figue 2 of the '123 patent, the rear gangs are on opposite sides of the row gang halves and rearwardly thereof. The support bars are pivotally mounted, "each being swingable about an axis extending normally transverse to the crop row". (Col. 1, lines 50-52). Mr. Whitesides equated the functional floating movement of the rear gangs and the row gangs and the structures used to mount them to the tool bar frame. He described the mounting of the rear gangs to the tool bar frame pointing out (Col. 3, lines 44-49) that:

> "Clevis assembly 22 is constructed so that the tool support bar 21 is *pivotal at its forward end around an axis*

> *which is transverse to the direction of forward movement of the cultivator along the crop rows,* which causes the rotary hoe gang 31 (i.e., rear gang) and plow assembly 44 to be swingable about the transverse axis.*

with the effect that the rear gangs

> ". . . will be urged into the soil without regard to high spots or low spots in the ground along the crop rows." (i.e., free floating) (Col. 3, lines 60-62)

He then states (Col. 3, lines 63-66) that

> "*In a similar manner* each rotary hoe gang 60 (i.e., row gang) of the support leg assemblies 45 and 46 of each section 13a-13d of the cultivator is pivotal about a clevis assembly 53"*

This "similar manner" of mounting the row gang

> ". . . provides independent suspension for each rotary hoe gang 60 so that *each of these rotary hoe gangs will be urged into and till the soil of the crop rows without regard to high spots and low spots along the crop rows.*" (i.e., free floating) (Col. 4, lines 9-13)*

11.07 The clamps 38 employed in both models of the 400 Series KMC Cultivator to attach the pair of rear gangs to their respective support bars permits the rear gangs to be angularly adjusted or tilted so that:

> "the overall arrangement is such that the rotary hoes of a rotary hoe gang 31 (rear gang) can be positioned in various positions with respect to the support bar to cultivate sloped surfaces of the crop row, to be positioned on one side or the other side of the support bar, or to be angled so as to expel dirt to either side of the support bar." (Col. 2, lines 64-67 and Col. 3, lines 1-2)

11.08 Mr. Moore testified that he was familiar with the Kelley 400 Series KMC Cultivator and had observed its opera-

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* Emphasis added.

* Emphasis added.

* Emphasis added.

tion. He testified that the KMC Kelley Cultivator (DX 22-237) performs the same function, and achieves the same result in the same way as the Lehman cultivator disclosed and claimed in the claims of the '271 reissue patent in issue. Mr. Moore worked extensively with the Kelley Series 400 KMC Cultivator in the field and testified that the Kelley Cultivator "can be adjusted to operate to perform the same results that we get with *Lehman*". (Tr. 999-1003) His testimony was corroborated with reference to an actual Kelley cultivator (DX 24-222) and the motion picture (DX 30-201) which showed the performance likenesses between the Lilliston-Lehman Cultivator and the Kelley Cultivator in actual field operation in cultivating row crops such as soybean, corn and cotton in a "once-over all-over" operation.

B. All Elements of the Claims At Issue Are Found In The Kelley 400 Series KMC Cultivator

11.09 Upon reviewing a color-coded correlation between Figures 10, 16 and 17 of the '271 reissue patent (DX 45-205, 46-207), the claim elements in issue of the '271 reissue patent (DX 47-208, 48-209, 49-210, 50-211, 51-212), elements of the 400 Series Kelley Cultivator as shown in DX-22-237 and the testimony of Mr. Dalbert Shefte, Lilliston's patent expert, it is concluded that all of the elements in the claims at issue are found in the 400 Series KMC Cultivator. (Tr. 1306-1313)

C. Kelley 400 Series KMC Cultivator Is Functional Equivalent of The Original Lehman Or The Lilliston-Lehman Cultivator

11.10 Kelley makes no claims that its cultivator is *not* the functional equivalent of the Lehman or the Lilliston-Lehman. Kelley's Vice-President, Mr. Whitesides, swore that the Kelley cultivator will do everything the Lilliston machine will do and

more. (Tr. 1648-9 and see DX 91-73, p. 6 compared to DX 139-175, p. C).

11.11 The motion pictures (DX 30-201) prove the functional equivalence between the Kelley cultivator and the Lehman or the Lilliston-Lehman cultivator.

11.12 The Lehman cultivator implement and the Kelley cultivator are functionally equivalent. The Kelley cultivator is capable of being adjusted to perform the same "once-over all-over" cultivation obtained with the Lehman cultivator covered by the claims in the '271 reissue patent in issue. (Tr. 1000-03, Tr. 1301-1313, Tr. 1354)

11.13 Plaintiff Kelley offered no visual or other tangible evidence to support its contention of non-infringement. It did not call upon Mr. Whitfield or Mr. Whitesides or anyone else familar with normal field use of the Kelley cultivator and its operation to rebut Lilliston's claim of functional equivalence between the Kelley cultivator and the claims of the '271 reissue patent at issue. Kelley's contention instead was promoted *solely* by Dr. Clark whose experience with the Kelley cultivator was limited to a brief exposure in 1974 under pre-arranged, ex parte, unusual conditions. (Tr. 243)

D. The Row Gang Mounting Arrangement Used By Kelley Is The Functional Equivalent Of The "Free-Floating" Row Gang Mounting Claimed In the '271 Reissue Patent

11.16 The function of the row gang mounting arrangement described in the '271 reissue patent is to provide the row gangs with a free-floating action so that the row gangs can conform or follow the varying contour of the ground in the crop rows during cultivation. (DX 1-2, Col. 1, lines 59-62).

11.17 On the earlier model of the 400 Series KMC Cultivator manufactured prior to 1973, the support leg assemblies (identified at 45 and 46 in Whitesides Patent No. '123) to

which were attached the row gangs were respectively mounted directly to the rear gang support bar assemblies (15 and 16 in the '123 patent). This mounting arrangement also permitted the row gangs to "free-float" or swing about a transverse axis to conform to the contour of the crop row during the operation of the cultivator.

11.18 The "free-floating" action is achieved by the row gangs used in the current model 400 Series KMC Cultivator (manufactured in 1973 and later) by the mounting arrangement shown in the photograph of the Kelley Cultivator. (DX 22-237A). Each row gang half is mounted on its support leg (52) which is pivotally mounted to vertical leg (50). As the row gang is moved in rotatable engagement with the crop row the support leg (52) functions to provide the "free-floating" action of the row gang achieved by the Lehman cultivator and the earlier 400 Series KMC Cultivator model in the same manner by vertically swinging to effect the same result of conforming to the contour of the crop row. (DX 30-201, DX 32-225, Tr. 1009-10, 1097-1112, 1357).

11.19 This is further supported by Mr. Whitesides, the designer of the Kelley cultivator, wherein he testified that the rotary hoe gangs were designed to float to follow variations in the terrain (Tr. 1614); and by his '123 patent (DX 10-100) as pointed out above in Findings 11.05 and 11.6.

11.20 The exaggerated downward radial movement of the rotary hoe halves described by Dr. Clark, would *not* be effected to occur if the Kelley row gang suspension arrangement were adjusted in accordance with the Kelley Owner's Manual (DX 8-321, p. 2) used in adjusting the 400 Series KMC Cultivator. (Tr. 326-329). In addition, Mr. Whitesides testified that the radial movement would make no difference. (Tr. 1676)

11.21 Although the mounting of the row gang is described in the claims of the '271 reissue patent at issue such that the row gang of rotary hoes swings "about a transverse axis to rotatably engage a row of crops during forward movement"

of the cultivator, there was no compulsion to word the claim in this manner. Form is not the essence of the invention of the '271 reissue patent.

11.22 Mr. Shefte disagreed with Mr. Nolan's attempt to invoke a file wrapper estoppel with respect to the term "transverse", pointing out (Tr. 1362-1366) that the portion of the file history referred to by Mr. Nolan was directed to a rocking action in relation to the *rear gangs* that had *no* relation to the use of transverse axis in defining the entirely different floating action of the *row gangs.*

11.23 Accordingly, there is no file wrapper estoppel with respect to the term "transverse".

E. There Is No Basis For Limiting The Term "Rotary Hoe" Or Front Row Gang

11.24 The patent in suit (DX 1-2) clearly describes a rotary hoe and the meaning of a gang of rotary hoes as noted above in Findings 9.07 and 9.08.

11.25 There is no basis to limit the ordinary meaning of "rotary hoe"; to limit the front gang, or either of the rear gangs to a one piece or one axle gang. Consequently, the recitation of same covers not only the particular embodiments illustrated in the Lehman patent, but also equivalents thereof. (Tr. 1112-1122)

12.02 The farmer may readily following the patent in suit and exercise judgment to make any adjustments necessary for a given crop and under a given set of field conditions to obtain the desired "once-over all-over" cultivation.

12.03 The U. S. Patent and Trademark Office did not raise any issue of indefiniteness of the claims during the prosecution of the '387 patent or the '271 reissue patent. Neither did Judge Garza in the Caldwell decision find any indefiniteness of the claims.

12.05 The usual presumption of validity of a patent provided by 35 U. S. C. § 282 is strengthened by the decision in *Lilliston Implement Co.* v. *E. L. Caldwell & Sons, Inc.*, 212 F. Supp. 413 (S. D. Tex. 1962). In finding the Lehman patent valid, Judge Garza in the *Caldwell* decision held:

> "The Defendant also claims that there is lack of invention and novelty in the patent in suit. With this, this Court cannot agree. . . . The cultivator patented by the Lehman is one that has revolutionized the cultivation of growing crops." 212 F. Supp., at 419.

12.06 The validity of the Lehman patent is further reinforced by the subsequent granting by the U. S. Patent Office of a reissue patent on December 10, 1974.

12.07 The prior art before the Court in the *Caldwell* case as set forth in the § 282 Notice filed by defendant Caldwell in that action (See DX150-226) is listed in the following table I. As this Court found in its Opinion denying plaintiff's motion for summary judgment:

> "In a prior patent infringement action involving the very patent with which this court is concerned, Lilliston Implement Company et al. v. E. L. Caldwell and Sons, Inc., 212 F. Supp. 413, 136 USPQ 543 (S. D. Tex. 1962), Judge Reynaldo Garza held the patent valid and infringed, and recognized that the patent involved an invention in a very highly developed and crowded field of art. 212 F. Supp. at 419, 136 USPQ at 547-548. In that case the defendant cited more than eighty prior art patents and publications, relying mainly on one patent at trial. While plaintiff here would distinguish the case on the ground that the court viewed closely only one prior art patent, it would seem more logical that the court reviewed all the patents and publications cited to it in considering the validity of the patent." 180 U. S. P. Q. at 372.

I. References Before Caldwell Court
Per Caldwell § 282 Notice

A. ". . . the art of record in the five Lehman et al. application files . . ."

305,613	941,252	1,655,737	2,232,552	2,592,423
360,614	941,740	1,719,292	2,271,713	2,595,637
415,113	949,218	1,827,708	2,294,205	2,650,460
542,339	1,033,330	1,879,785	2,294,470	2,663,131
553,100	1,117,728	1,967,493	2,335,156	2,689,514
617,786	1,329,598	2,034,229	2,483,649	2,707,909
629,727	1,463,353	2,100,499	2,539,632	2,729,929
675,968	1,542,733	2,154,840	2,547,479	2,762,285
897,057	1,559,309	2,191,537	2,569,464	2,880,813

German Patent 728,199

B. ". . . prior art requested of Plaintiff by Interrogatories of July 6, 1962 . . ."

German	35,027	British	825,418
German	176,666	French	1,104,111
German	281,919	French	1,202,274
German	377,956	U. S. A.	1,132,152
German	480,060	U. S. A.	1,289,664
German	543,246	U. S. A.	1,655,737
British	809,155	U. S. A.	1,718,510

U. S. A. 1,908,110

C. "PATENTS"

U. S.	231,582	U. S.	1,249,008
U. S.	529,457	U. S.	1,642,261
U. S.	957,722	U. S.	1,908,110
U. S.	1,135,508	U. S.	2,308,575

D. "PUBLICATIONS"

A Progress Report on ROTARY HOE USE IN TOBACCO, by Robert W. Wilson, January 1951, Information Circular No. 5, Department of Agricultural Engineering, N. C. Agricultural Experiment Station

ROTARY HOES, by Dale O. Hull, Pamphlet 226, May 1956, Agricultural Extension Service-Iowa State College, Ames, Iowa

LINE-DIAGRAM METHOD for the SETTING OF FARM IMPLEMENTS, by William E. Meek and Battle B. Ewing, Circular 138, February, 1948, Mississippi State College, Agricultural Experiment Station, State College, Miss.

Sears Roebuck and Co. Catalog, Spring 1929, pages 880, 881, 882, 883. Obtainable at Library of Congress as Book Number TS 199.843

Sears Roebuck and Co. Catalog, Spring 1928, page C887

A MACHINE FOR USE IN EVALUATING AGRICULTURAL FIELD TOOLS, by Edwin James Matthews, University of Arkansas, 1955, entire thesis and movie

PRINCIPLES OF FARM MACHINERY, by Bainer, Kepner & Barger, John Wiley & Sons, Inc., 2nd printing, copyright 1955, pages 197 to 211 and 257 to 281

AGRICULTURAL ENGINEERING, October 1949, "Cultivation & Weed Control of Cotton", by E. N. Scarborough, page 491

METHODS AND TOOLS FOR TOBACCO CULTIVATION, Bulletin 397, March 1956, Agricultural Experiment Station, North Carolina State College, Raleigh, N. C.

MACHINERY FOR FARM, RANCH & PLANTATION, by Arthur W. Turner, E. J. Turner, McGraw Hill Publishing Co., 3rd printing, copyright 1948, pages 258 to 288 (Phillips' deposition)

FARM MACHINERY & EQUIPMENT, by Harris Pearson Smith, McGraw Hill Publishing Co., 4th edition, copyright 1955, pages 231 to 249; also 3rd edition, chapter on cultivators, 1948

MECHANICAL PRODUCTION OF COTTON in the YAZOO-MISSISSIPPI DELTA, by Adams & Gull, reprint T. T. -11-46, American Potash Institute, Inc. (Phillips' deposition)

12.08 This Court ordered plaintiff to specify, with respect to all items of prior art on which plaintiff intends to rely:

> ". . . the manner in which any such items of prior art is materially distinguishable from those considered in reaching prior decisions of patent validity and patentability." (Court's Order of August 25, 1977)

No such distinctions have been pointed out by plaintiff.

C. The '271 Reissue Patent Meets The Conditions Of Patentability Imposed By The Court and the Statutes (35 USC 101, 102, 103)

12.09 Plaintiff has the burden to show that the novelty, usefulness, and non-obviousness tests established by the provisions of 35 U. S. C. §§ 101, 102 and 103 to determine the question of patentability have not been met. [See *Graham* v. *John Deere*, 383 U. S. 1, (1966)].

12.10 Plaintiff does not question the utility of the '271 reissue patent. The '271 reissue patent meets the test of usefulness under § 101.

12.17 The "more than 80 prior art patents and publications" cited by the defendant in the *Caldwell* litigation (212 F. Supp., at 419) illustrate the high degree of patent activity in this and related art. Although the patent activity was significant, no equipment was commercially available which provided a cultivator to the farmer for "once-over all-over" cultivation. (Tr. 1545-50)

12.18 The references upon which plaintiff relies to allegedly show the elements and concepts of the '271 reissue patent are as follows:

Braun 1,908,110 (PX 10-91)
Remy French 1,104,111 (PX 12-115 & PX 13-116)
Walker 2,227,772 (PX 27-112)
Burns 2,243,241 (PX 55-233)
Ogden 675,968 (PX 11-87)
Maul 529,457 (PX 14-143)
Charley 2,655,083 (PX 41-326)
Newton 1,681,464 (PX 39-325)
Friend 2,579,5561 (PX 40-324)
Benjamin 1,760,336 (PX 33-95)
Christensen et al. 1,043,202 (PX 49-140)
Christofferson 949,218 (PX 48-89)

Burns (PX 55-233) and Christensen (PX 49-140) were relied upon by plaintiff to merely show the state of the art. (Plaintiff's pre-trial 35 USC 282 Amended Notice) The Charley (PX 41-326), Newton (PX 39-329) and Friend (PX 40-324) references were brought to defendant's attention by plaintiff on the eve of the trial.

12.19 With the exception of the Burns and Christensen "state of the art" references and the newly cited Charley, Newton and Friend references, the remainder of the references have already been considered in reaching prior decisions of the patent validity and patentability in either the *Caldwell* case (See DX 150-226) or before the Patent Office on the reissue application. (DX53-3, pgs. 50-62 and 139) There are no material distinctions between these references and the prior art already considered in the *Caldwell* case or in the reissue application.

b. There Are Patentable Differences Between the Prior Art and the Claims in Issue

12.20 Walker's radial blades (PX 27-112) would cause crop destruction of run in contact with the crop. (Tr. 1588-89)

There is no disclosure in Walker which teaches the substitution of a rotary hoe gang for the radial blades used as choppers by Walker. Charley (PX 41-326) does not suggest such a substitution. The cooperative effect of the row gangs of rotary hoes and pairs of rear gangs of rotary hoes is only taught by the '271 reissue patent and not by the prior art.

12.21 Ogden (PX 11-87) does not teach any cooperative effect to be achieved between a front cultivator element and a rearwardly mounted pair of rotary hoes. Remy (PX 12-115) does not disclose rotary hoes nor does it disclose any cooperative effect. Maul (PX 14-143) is similar to Ogden in showing a single set of gangs of spading teeth. Maul merely shows a single pair of gangs of spading teeth angularly adjustable in the manner of a conventional disc cultivator for moving dirt to and from the row of crops under cultivation.

12.22 Combining Maul (PX 14-143) and Christoffersen (PX 48-89) and Ogden (PX 11-87) could only be made by hindsight using the '271 reissue patent as part of the prior art. The suggested references which show only single sets of cultivating tools do not teach or even suggest the invention embodied in the claims of issue. The same finding is reached for plaintiff's suggested combination of Burns (PX 55-233) or Friend (PX 40-324) and Maul (PX 14-143) and Christoffersen (PX 48-89).

12.23 No cooperative effect is taught for the cultivator shovels used on Newton's cultivator attachment (PX 39-325) which permits the lateral adjustment of the shovels while in the ground in order to enable the shovels to align with irregularities in the rows.

12.25 Neither Braun (PX10-91) nor Remy (PX12-115) teaches the "once-over all-over" concept achieved by the Lehmans.

12.34 While the Lehman invention comprised a combination of known elements, the combination achieved an unusual,

unexpected, new and desirable "once-over all-over" cultivation effect. This fulfills any requirement of "synergism" injected by the Supreme Court in *Sakraida* v. *Ag Pro, Inc.*, 429 U. S. 273 (1976) and *Anderson's Black Rock* v. *Pavement Salvage Co.*, U. S. 57 (1969).

XIII PLAINTIFF'S MISCELLANEOUS CONTENTIONS OF FRAUD, INEQUITABLE CONDUCT, MISUSE AND INTERVENING RIGHTS

13.01 Allegations of fraud and inequitable conduct must be established by clear, unequivocal and convincing evidence.

13.02 Not only has plaintiff failed to meet its burden, but its allegations that defendant committed fraud on the Patent Office in prosecuting the '387 patent and inequitable conduct in prosecuting the '271 reissue patent are unfounded.

13.03 All of the 23 references which plaintiff alleges were not brought to the attention of the Patent Office in the prosecution of the '387 patent were brought to the attention of the Patent Office by defendant during prosecution of the '271 reissue patent (DX53-3, pages 117-120)

13.04 Plaintiff has failed to show any intentional withholding, bad faith, gross negligence or reckless disregard of the duty of frankness on the part of defendant in connection with these references and the '387 patent.

13.05 Plaintiff attaches special importance to three of these references, Farnham, Waterman and Hipple. The Farnham Patent (PX34-113) was before the Court in the *Caldwell* action. The Waterman Patent (PX37-135) was known to the defendant Caldwell but was discarded and was not relied on by Caldwell at the trial. (DX150-226)

13.06 The Waterman, Farnham and Hipple Patents are not materially distinguishable from and are merely cumulative of the prior art considered by the U. S. Patent Office during prosecution of the '387 patent. This is evidenced by the reissue of

the '387 patent as the '271 reissue patent by the Patent Office after its consideration of these references. (DX53-3, pages 117-120 and 139)

13.07 Kelley fails to show the materiality of any of these references. Kelley attaches so little significance to the Farnham, Waterman and Hipple Patents that it fails to even rely on them for invalidity.

13.08 Kelley had knowledge of the Lehman reissue application. Defendant agreed to allow Kelley access to the application file and proceedings during prosecution; and, in fact, defendant furnished Kelley with copies of all documents submitted to and received from the Patent Office. Although Kelley had the opportunity, it chose not to participate and did not submit any prior art references or attempt to explain defendant's "interpretation of the claims." It cannot now be heard to complain that defendant brought over 270 items of prior art to the attention of the Patent Office in the prosecution of the '271 reissue or that defendant didn't explain its "claim interpretation." (DX53-3)

13.09 Plaintiff's allegation that the date on which the supposed defect in the '387 patent was discovered was misrepresented to the Patent Office is not supported by the record. Nowhere in the letter from Kelley's counsel to Lilliston's counsel (PX73-275) is notice of the defect made clear to a reasonable person. The affidavit filed in Support of the Declaration (DX 53-3, pages 125-126) clearly sets forth the manner in which the alleged defect was discovered. There is no showing of any intentional misrepresentation, bad faith, gross negligence or reckless disregard of counsels duty. Kelley remained silent throughout the reissue proceedings and now cannot be heard to complain.

13.10 Defendant was lawfully exercising its patent rights in its prior infringement suits against Caldwell, Deere and International Harvester.

13.11 Plaintiff has failed to establish that defendant has engaged in activity which amounts to patent misuse.

13.12 No cultivator capable of achieving "once-over all-over" cultivation in accordance with the patent in suit was on sale or in use more than one year prior to the effective filing date of the '387 patent. [See Findings 5.07-5.09]